SERVICE INFORMATION

In the event replacement of IC350 is necessary, or a customer is dissatisfied with the initial factory default values, the following procedure may be required to enter the field service test mode.

ENTERING TEST MODES

A remote transmitter is required in order to perform this adjustment.

1. From the main chassis board assembly, momentarily ground the keyboard line (pin 1 of J300) through a 100 ohm resistor or enter, in sequence, 0 6 2 5 9 6 then press the menu button on the remote transmitter (these entries must be made before the displays time out or the sequence will have to be repeated). The receiver must be on for the test mode to be activated. Subsequent entries of this command will not be acted upon by the system.

EXPLANATION OF TEST MODES

NOTE: A loss of power during this test mode will cause the set to return to normal operations.
Test mode A - no information available
Test mode B - no information available
Test mode C - field service test mode
Test mode D - no information available

Test mode C

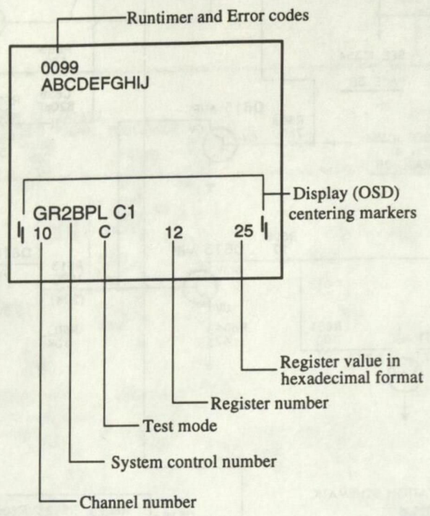
1. Test mode C is used to set the receiver to its optimum settings.
2. Upon entry into the field service test mode the set will enter test mode C and display the following:
3. In this mode all normal on screen displays (OSD's) will be suppressed and replaced by this special test mode display.
4. The first line in the lower left hand corner (displayed in red) is the control systems number (GR2BPL). This number will be followed by a letter denoting use of the control system, whether in consumer product (C), lodging product (M) or hospital product (H). This letter will be followed by a single digit number signifying the current revision level of the software in use.
5. If the model being tested has the PIP function, the PIP window will appear upon entry into the field service test mode.
6. By depressing the status / exit button, the system runtimer will be displayed along with the system information. The runtimer will displayed in the upper left hand portion of the screen in hexadecimal format.
7. In the upper left hand corner, directly under the system runtimer, there may appear up to 10 letters. These letters indicate the failure or operation of a functional part of the system. These letters are called error codes. Error codes will only be displayed if the function is not operating properly, that particular function of the system will operate in one of two modes, or the set does not have that feature.
8. By depressing any key on the remote transmitter, except the status/exit button, the system runtimer and the error code display will be removed from the screen.
9. To restore the system runtimer and the error code display depress the status/exit button on the remote transmitter.
10. The following is a list of error codes and an explanation for each code.

Error Code Explanation

A - tuner failure
B - memory failure
C - black & white PIP module failure
D - color PIP module failure
E - clock failure
F - jack panel failure (1)
G - audio panel failure
H - line frequency = 50Hz (2)
I - RF switcher failure (1)
J - remote locator failure (1)

(1) Models using the standard software do not support these functions and will not display them as error conditions.

(2) The clock time base is derived from the AC line frequency. The microcontroller will test the time base of the AC line frequency and determine if the clock is to run from a 50Hz base (for Latin America) or a 60Hz base. Any frequency between 37Hz and 55Hz will be considered to be 50Hz. Any frequency above 55Hz will be considered 60Hz for use in the clock time base and no error code will appear.



SPECIAL KEY DESIGNATION

Special keys have been designated to function within this test mode. These keys and their functions are described below.

a) Channel up or channel down and the number keys will allow access to a channel. Using the number keys allows random access to any channel, while the channel up or channel down keys scan the channels in the favorite station memory.

b) Display or menu keys will cause the test mode to change from A through D.

c) The cursor up and cursor down keys will increase or decrease the register number from 10 through the maximum number of control registers.

d) Plus and minus or cursor right and cursor left change the register's value. The register values can be increased or decreased in one step increments from minimum to maximum. These values will be saved in memory when the field service mode is exited.

e) Depressing the p. pref. button on the remote transmitter will degauss the set.

IDENTIFYING SOFTWARE

The on screen display (OSD) centering markers will signify whether the set being tested uses standard software or deluxe software.

If there are two yellow centering markers only, this set uses standard software.

The yellow centering markers can be adjusted horizontally by entering register number 19 and then changing the register's value by following the procedure outlined in special key designation section steps c) and d).

If there are two yellow centering markers and two red centering markers, this set uses deluxe software.

First adjust the yellow centering markers with the same procedure listed above. The red centering markers can then be adjusted by entering register 18 number 20. The red marker on the left hand side should be lined up directly over, or as close as possible to, the yellow marker on the left hand side. Use the procedure in special key designation section steps c) and d).

MODIFYING TEST MODE

The field service test mode display will appear, along with the system information, whenever the field service test mode has been entered. This display is a one line display at the bottom of the screen containing the channel number, test mode level, register number, and the register value.
Upon entering the field service test mode the first register displayed is the Picture register (Register 12).
Registers and their functions are as follows:

Register	Value	Function
10	(1)	Feature Word
11	1F	Brightness register
12	30	Picture register
13	1F	Color register
14	1F	Tint register
15	1F	Sharpness register
16	20	Bass register
17	20	Treble register
18	20	Balance register
19	(2)	Horizontal Display start position (Yellow)
20	(2)	Horizontal Display start position (Red)
21	04	PIP Write counter position
22	07	PIP Read counter position
23	(3)	PIP X position register
24	(3)	PIP Y position register
25	06	Beam current register
26	-	Exit field service test mode register

(1) The value of this register is determined by the features included in the model being tested.

(2) In sets using standard software, whatever value is given to Register 19 is automatically stored in Register 20.

(3) The Register value determines the position of the PIP window. The following chart shows the correct register value depending upon the position of the PIP window.

PIP Position	X Position Register 23	Y Position Register 24
Upper left-hand corner	05	06
Upper right-hand corner.	2E	06
Lower left-hand corner	05	31
Lower right-hand corner	2E	31

NOTE: All registers can be altered even though they may not be a part of the feature package associated with the set being tested.

The following items are defined by the programming of the memory for each test mode. Their values are predetermined by the factory for their specific requirements in each test mode.

Brightness
Picture
Color
Tint
Sharpness
Stereo Mode
SAP Mode
Aux Input or Antenna
SVHS Input
Channel

EXITING TEST MODE

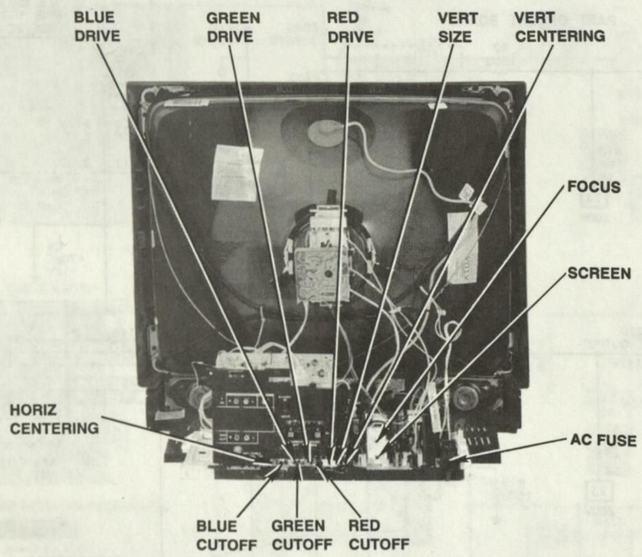
To exit the field service test mode (test mode C), choose Register 26. The value of this register upon entry will be 0, increase its value to F, or turn the set off at the local (keyboard) power button.

The system will then execute the following:

a) The setup values will be stored.
b) The favorite station maps will be overwritten (the stations which will be programmed into memory will be 2 through 14 and AUX / VCR.)
c) The video and audio controls and the last channel are recalled from the memory.

Line Reference Target LRT-8E4-V2

CABINET - REAR VIEW



TEST JIG HOOKUP

Function	Chek-A-Color Adapter No.	PC Board Plug No.	Pin	Color
CRT	B239	J500	1, 2	Red
Yoke	D482		3, 4	Blue
Yoke Setting	YP1	J550	1	Black
Comments	Focus Tap		2	Yellow

The listing of any available replacement part herein in no case constitutes a recommendation, warranty, or guarantee by Howard W. Sams & Company as to the quality and suitability of such replacement part. The numbers of the listed parts have been compiled from information furnished to Howard W. Sams & Company by the manufacturers of the specific type of replacement part listed.

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SET 3162

MODEL 27S300C101 (CHASSIS 27X112)

PHILIPS

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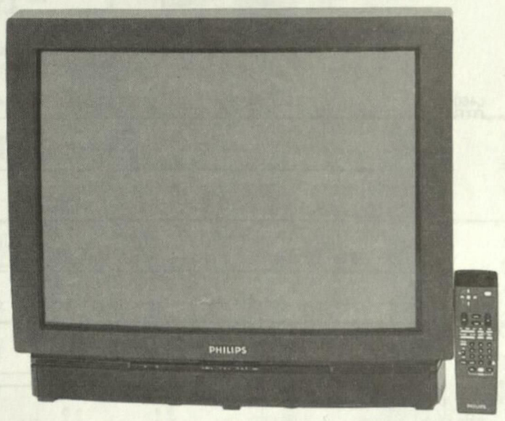
PHOTOFACT® Technical Service Data

PHILIPS

Model 27S300C101 (Chassis 27X112)



Complete coverage for servicing a television receiver...

- Schematics
- Parts lists
- Component locations
- Troubleshooting guide

HOWARD W. SAMS & COMPANY
JUNE 1993 SET 3162

3162

TROUBLESHOOTING

POWER SUPPLY

Check the AC Fuse F400.

If F400 is open:

Check voltages, waveforms, and components associated with D402 thru D405, C400, C405, and C406.

Apply 120VAC and check for 160V* at the drain of Q420.

If 160V* is missing:

Check voltages, waveforms, and components associated with Q420, L400, R424, and T401.

If 160V* is present at the drain of Q420, check for 11.0V at TP12.

If 11.0V is missing at TP12:

Check voltages, waveforms, and components associated with T450, Q450, and pins 10 thru 15 of IC401.

If 11.0V is present at TP12, check for 130V at TP4.

If 130V is missing at TP4:

Check voltages, waveforms, and components associated with Q420, T401, pins 1 thru 9 of IC401, IC400, IC402, IC403, and IC570.

If 130V is present at TP4:

Refer to the "Horizontal" section of this Troubleshooting guide.

* Taken from common tie point.

HORIZONTAL

Inject a horizontal signal at the base of Q502.

If horizontal deflection is now present:

Check voltages, waveforms, and components associated with Q690, Q691, Q510, Q501, and pins 22 thru 27 of IC200.

If horizontal deflection is still missing:

Check voltages, waveforms, and components associated with Q502, T502, and components associated with D451, D445, and D530 for defects.

The high voltage rectifier is part of T502 and if defective will affect the performance of the horizontal circuits.

Horizontal linearity or foldover problems may be caused by C504 and C505 being defective.

VERTICAL

Inject a vertical drive signal at pin 28 of IC200.

If vertical deflection is now present:

Check voltages, waveforms, and components associated with pin 28 of IC200.

If vertical deflection is still missing:

Check voltages, waveforms, and components associated with IC550 and Q500.

Vertical linearity or foldover problems maybe caused by vertical feedback and bias circuits:

Check C550, C556, C558, and C559 for defects.

IF AGC

Inject a video IF signal at the IF input and check for video on the CRT.

If video is present:

Check the tuner, tuner control circuits, and AFC circuits.

If there is no video, check for a video waveform at TP215 (emitter of Q215).

If video is present at TP215, apply AGC bias to pin 2 of IC200.

If video is now present at TP215:

Check voltages, waveforms, and components associated with pins 2, 8, 9, 10, and 44 thru 51 of IC200 and Q215.

A defective AGC circuit can cause an overloaded picture, excessive snow or loss of audio and video.

See AGC Voltage Chart for AGC voltages with signal.

AGC VOLTAGE CHART

IC200

Pin 2 6.8V

Pin 49 3.8V

VIDEO

Inject a video signal at TP215 (emitter of Q215) and check for video on the CRT. If video is present:

Refer to the "IF AGC" section of this Troubleshooting guide.

If there is no video on the CRT, check for a video waveform at pin 40 of IC200.

If video is missing at pin 40 of IC200:

Check voltages, waveforms, and components associated with Q210 and Q211.

If video is present at pin 40 of IC200, check for a video waveform at pin 34 of IC200.

If waveform is missing:

Check voltages, waveforms, and components associated with pins 5, 6, and 7 of IC601, Q601, Q611, Q620, Q630, and Q631.

If video is present at pin 34 of IC200:

Check voltages, waveforms, and components associated with pins 31, 32, 33, 35, and 39 of IC200 and Q660.

If brightness is inadequate or cannot be controlled:

Check voltages, waveforms, and components associated with pin 7 of CRT, R380, and pin 31 of IC200.

CHROMA

Check for a chroma waveform at pin 11 of IC601.

If chroma waveform is missing:

Check voltages, waveforms, and components associated with pins 10, 11, and 12 of IC601.

If proper waveform is present at pin 11 of IC601, check for the proper waveforms at the collectors of Q650, Q651, and Q652.

If these waveforms are missing:

Check voltages, waveforms, and components associated with Q650, Q651, Q652, and pins 12, 13, 18, 19, 20, 36, and 39 of IC200.

Check the 3.58MHz oscillator at pin 13 of IC200.

If there is inadequate tint range:

Check voltages, waveforms, and components associated with pin 41 of IC200.

If the proper waveforms are present at the collectors of Q650, Q651, and Q652:

Refer to the "Raster" section of this Troubleshooting guide.

RASTER

Check the CRT and CRT voltages.

If there is no red:

Check voltages, waveforms, and components associated with Q1.

If there is no green:

Check voltages, waveforms, and components associated with Q2.

If there is no blue:

Check voltages, waveforms, and components associated with Q3.

If the raster has a keystone shape:

Check the deflection yoke .

If the raster has a height or width problems:

Refer to the "Vertical", "Horizontal", and "Power Supply" sections of this Troubleshooting guide.

AUDIO

Select an active TV channel and check for an audio waveform at pin 39 of IC260.

If there is no audio:

Check voltages, waveforms, and components associated with Q248, and pins 1, 4, 5, 6, and 48 IC200.

If audio waveform is present at pin 39 of IC260, check for audio waveforms at pins 11 and 15 of IC261.

If audio waveforms are missing at pins 11 and 15 of IC261:

Check voltages, waveforms, and components associated with IC260.

If audio waveforms are present at pins 11 and 15 of IC261:

Check voltages, waveforms, and components associated with IC261 and IC262.

TEST EQUIPMENT

Test equipment listed by participating manufacturer illustrates typical or equivalent equipment used by Sams engineers to obtain measurements. This equipment is compatible with most types used by field service technicians.

Equipment	Sencore No.	Equipment	Sencore No.
Oscilloscope	SC3100	Isolation Transformer	PR57
Generators		Capacitance Analyzer	LC101, LC102
RGB	CM2000	CRT Analyzer	CR70
Multiburst Signal	VG91	AC Leakage Tester	PR57
Color Bar	VG91	Inductance Analyzer	LC101, LC102
TV Stereo	VG91	Flyback Yoke Tester	TVA92
Digital VOM	SC3100	TV Stereo Power Monitor	SR68, PA81
Frequency Meter	SC3100	Field Strength Meter	SL750
Hi-Voltage Probe	HP200	Transistor Tester	TF46
Accessory Probes	TP212	Video Analyzer	VG91, TVA92

MISCELLANEOUS ADJUSTMENTS

PRETUNING

Note: All procedures require an antenna connected and power applied to the set. Select TV/CATV. Use buttons on receiver front panel or remote transmitter.

Add or Erase Channel

1. Press M on remote transmitter or the Menu button on TV.
2. Press Menu Up or Down buttons until *Channel* is highlighted.
3. Press Channel Up or Channel Down buttons to select desired channel.
4. Press + or - button to add or erase the selected channel.
5. Press Status/Exit to clear screen.

Sleep Timer

1. Press Sleep on remote transmitter.
2. Press the + or - button to select the desired time setting.
3. Press Status/Exit to clear screen.

Time Set

1. Press M on remote transmitter or the Menu button on TV.
2. Press Menu Up or Down buttons until *Time set* is highlighted.
3. Press the - button to set the hour.
4. Press the + button to set the minutes.
5. Press Status/Exit to clear screen.

NOTE: This set employs Digital Customer Controls. Set all controls to normal viewing level unless otherwise indicated.

B+ CHECK

Connect a voltmeter to TP4, low side to ground. Set Brightness to minimum. With AC line voltage at 120VAC, adjust 130V control R433 for 130V.

RF AGC

Tune in a station and set all controls to normal. Adjust AGC control R207 until snow (noise) appears in the picture. Adjust in opposite direction until snow just disappears.

SUB BRIGHTNESS

Tune in a crosshatch pattern. Set brightness and picture to minimum. Adjust sub brightness control R380 for just visible highlights. Check all active channels for blooming, and readjust if necessary.

HORIZONTAL CENTERING

Tune in a crosshatch pattern. Adjust horizontal centering control R514 for proper centering of pattern.

PURITY

Turn set on and allow a 15 minute warm-up. Tune in a green raster pattern. Loosen the deflection yoke clamp and unlock the purity rings. Place the purity tabs at the 12 o'clock position. Use a degaussing coil to demagnetize CRT and mounting brackets. Move deflection yoke back against purity magnet. Adjust purity tabs to place green bar in the center of the screen. Move the deflection yoke forward until a uniform green raster is obtained. Adjust purity correction magnets if necessary. Tighten yoke clamp and purity rings.

GRAY SCALE

Tune in a crosshatch pattern. Set brightness, picture, color, and screen to minimum. Set red cutoff R649, green cutoff R647, blue cutoff R653, blue drive R654, red drive R651, and green drive R648 controls to midrange. Adjust screen control until a faint pattern appears. Note the color of the pattern and adjust the other two cutoff controls to obtain a white pattern. Set brightness and picture to maximum. Adjust drive controls for best white in highlight areas.

CONVERGENCE

Operate the set for 15 minutes. Tune in a dot pattern. Loosen locking ring and adjust 4 pole magnets to converge the red and blue dots at the center of the screen. Adjust the 6 pole magnets to converge the red/blue dots over the green dots at the center of the screen. NOTE: Rotate the two tabs of each set of magnets equally and opposite to converge vertically, and rotate both tabs in the same direction to converge horizontally. The 4 and 6 pole magnets interact, repeat adjustment until center convergence is correct. Tune in a crosshatch pattern. Loosen deflection yoke clamp and remove rubber wedges. Tilt deflection yoke up or down to converge vertical lines at top and bottom of screen, and horizontal lines at left and right of screen. Tilt deflection yoke right and left to converge horizontal lines at top and bottom of screen, and vertical lines at right and left of screen. Replace rubber wedges and tighten deflection yoke screw.

STEREO ADJUSTMENTS

Adjustments were made using an MTS TV / stereo generator. Unless otherwise indicated, adjustments are made with customer controls at normal settings.

INPUT LEVEL

Connect generator to antenna terminals. Select stereo mode on receiver. Select pilot, 1kHz audio frequency, and L-R modulating signal. Connect an oscilloscope to pin 39 of IC260 and adjust the audio level control R249 for .5V p-p MTS signal.

SAP FILTER

Connect generator to antenna terminals. Select SAP mode on receiver. Select SAP, 1kHz audio frequency, and L-R modulating signal. Connect an oscilloscope to pin 26 of IC260. Mark the SAP bandpass control R257 for reference. Turn R257 fully clockwise then slowly back until the waveform appears. Mark this control setting. Turn R257 fully counterclockwise then slowly back until the waveform appears. Mark this setting. Set the control halfway between the two settings just made.

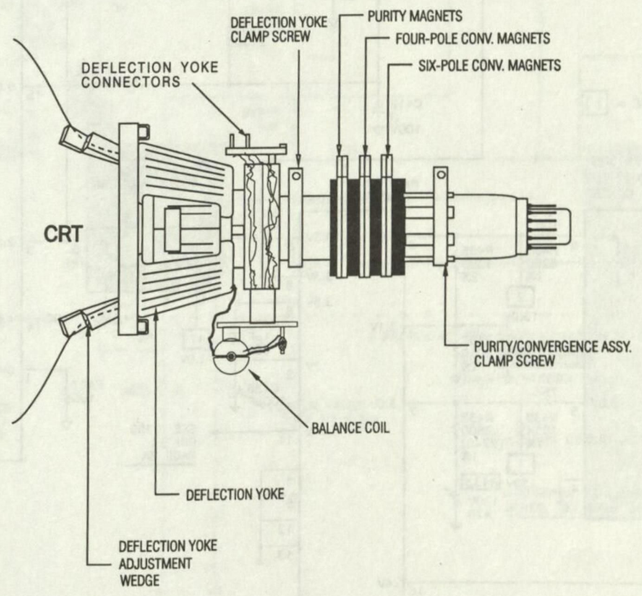
SEPARATION

Connect generator to antenna terminals. Select stereo mode on receiver. Select pilot, 300Hz audio frequency, and left modulating signal. Connect an oscilloscope to pin 11 of IC261, and adjust the 300Hz control R258 for minimum amplitude of waveform. Set audio frequency to 8kHz and adjust the 3kHz control R255 for minimum amplitude of waveform. Repeat until no further decrease in amplitude can be obtained.

PILOT NULL

Connect generator to antenna terminals. Select stereo mode on receiver. Select pilot on and SAP off. Turn the pilot null control R259 fully counterclockwise then slowly back until the stereo indicator lights.

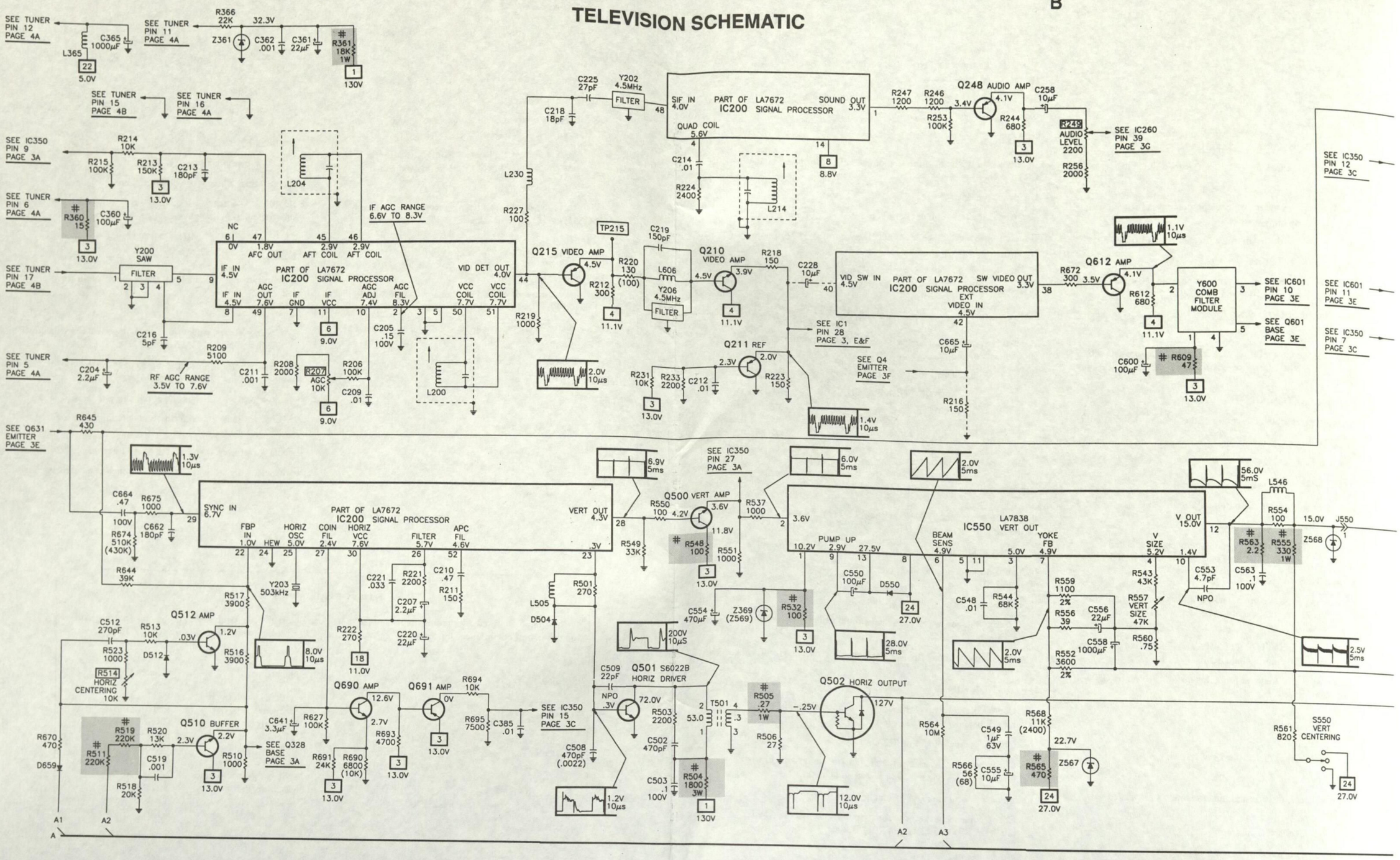
CRT NECK ASSEMBLY



TELEVISION SCHEMATIC

A

B



POWER SUPPLY SCHEMATIC

120VAC 1.35A POLARIZED
SEE IC352 PIN 1 PAGE 3A
PART OF K400 DEGAUSS
SEE IC350 PIN 41 PAGE 3B
Q408 SWITCH
IC401 CONTROLLER
MTW8N50E Q420 SWITCHING
Q450 STANDBY SWITCHING
IC400 6N136 OUTPUT VOLTAGE REGULATOR
IC402 CNX35U ON/OFF SHUTDOWN
IC570 SC78130U SHUTDOWN CONTROL
PART OF IC403 CONTROL
SEE T502 PIN 4 PAGE 2C
SEE IC350 PIN 34 PAGE 3C
SEE T502 HORIZ OUT TRANSFORMER PAGE 2C
GLUE TEST
T401 BOTTOM VIEW
T450 BOTTOM VIEW
PART OF JACK PANEL
PART OF CRT BOARD
PART OF IR RECEIVER
TAKEN FROM COMMON TIE POINT
A PHOTOFACT STANDARD NOTATION SCHEMATIC
WITH CIRCUITRACE
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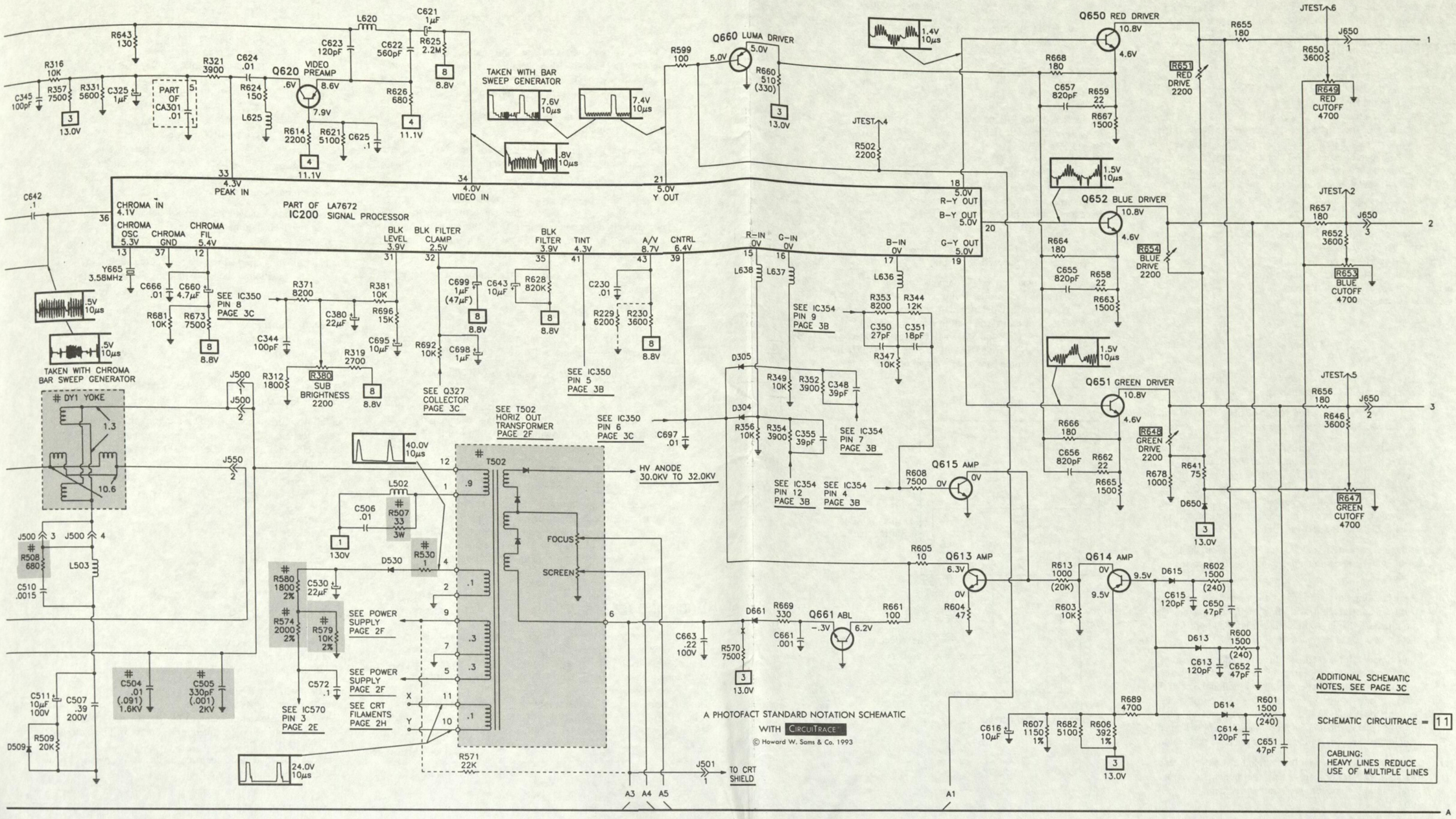
ADDITIONAL SCHEMATIC NOTES, SEE PAGE 3C
SCHEMATIC CIRCUITRACE = 11

E

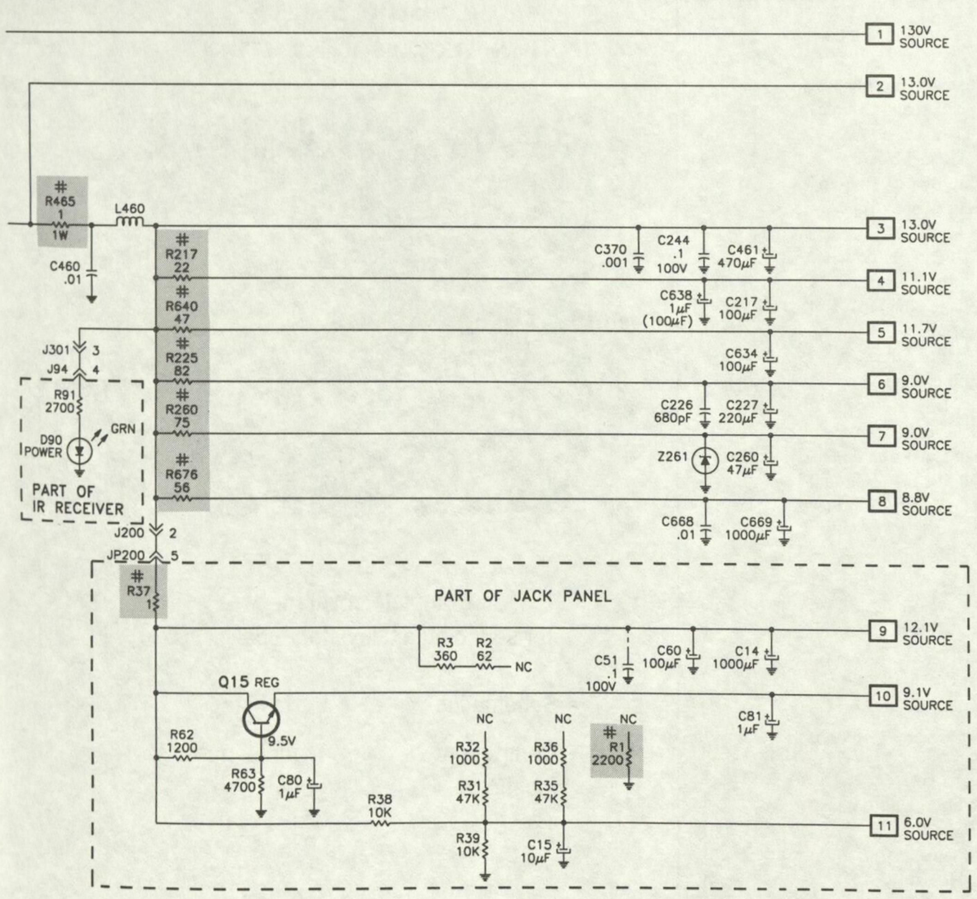
F

Line Reference Target LRT-BE4-V2

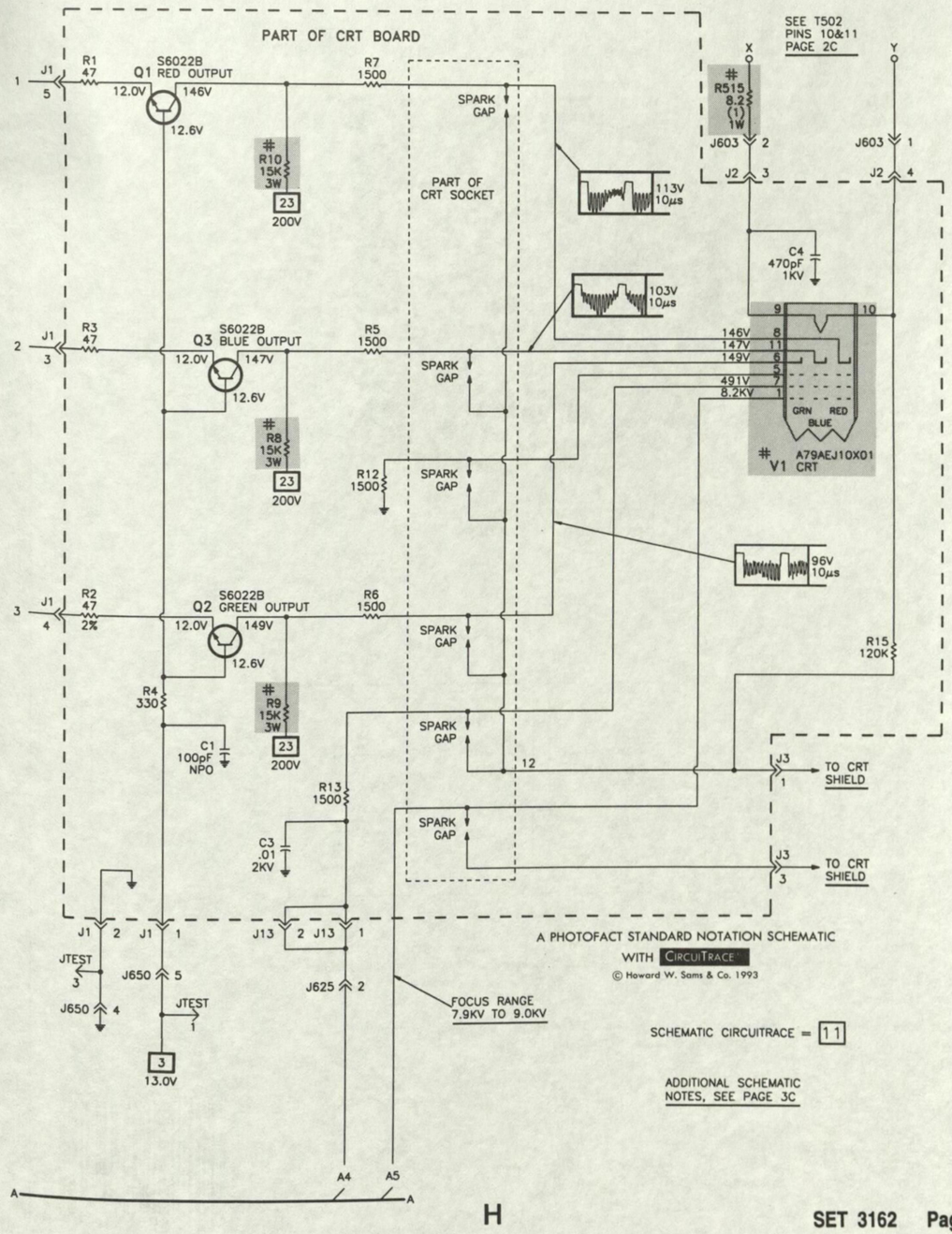
TELEVISION SCHEMATIC continued



POWER SUPPLY SCHEMATIC continued



CRT SCHEMATIC

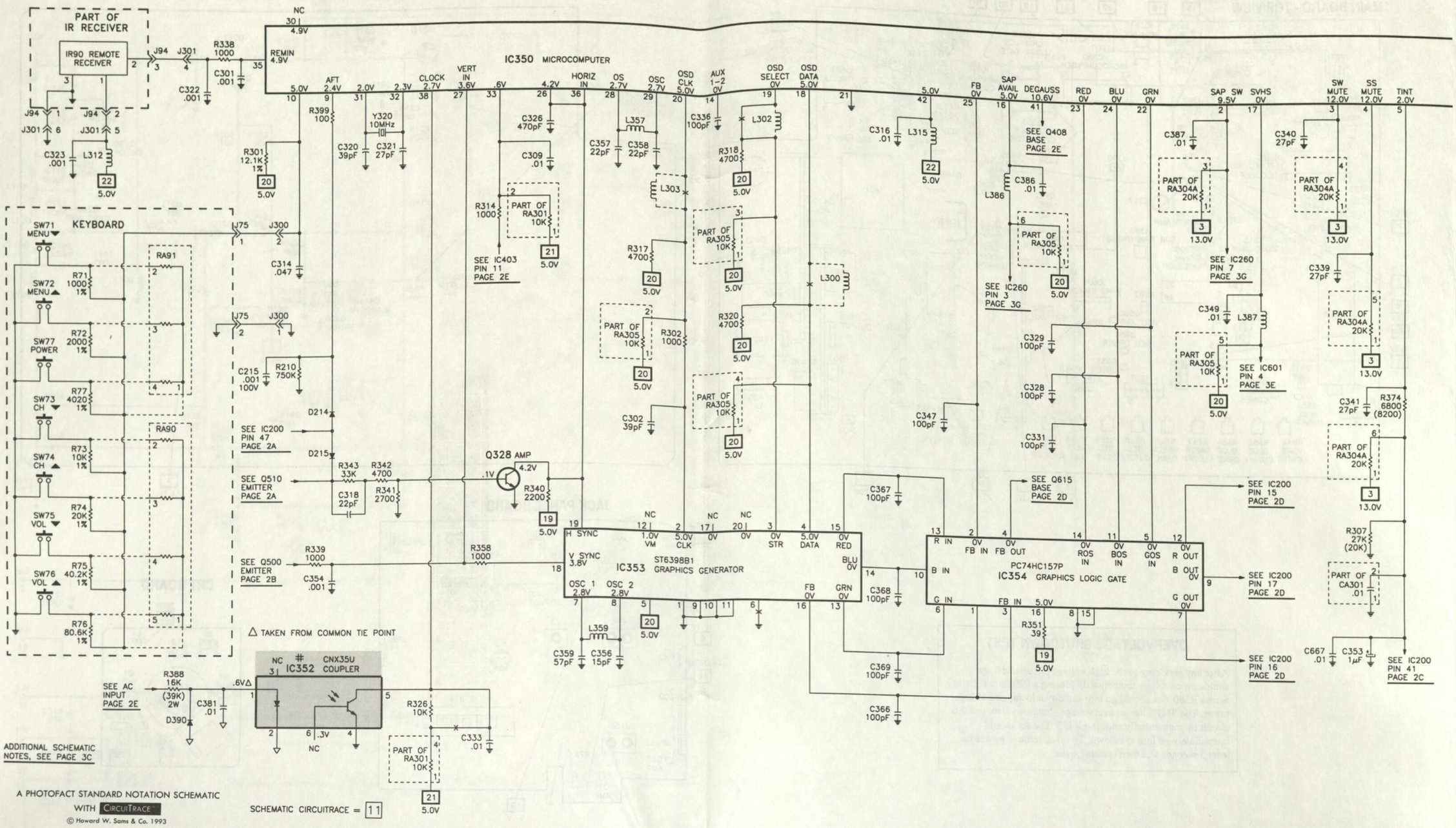

PART OF CRT BOARD
S6022B Q1 RED OUTPUT
S6022B Q3 BLUE OUTPUT
S6022B Q2 GREEN OUTPUT
SPARK GAP
PART OF CRT SOCKET
SEE T502 PINS 10&11 PAGE 2C
A79AEJ10X01 V1 CRT
TO CRT SHIELD
FOCUS RANGE 7.9KV TO 9.0KV
A PHOTOFACT STANDARD NOTATION SCHEMATIC
WITH CIRCUITRACE
© Howard W. Sams & Co. 1993
SCHEMATIC CIRCUITRACE = 11
ADDITIONAL SCHEMATIC NOTES, SEE PAGE 3C

PHILIPS MODEL 27S300C101 (CHASSIS 27X112)

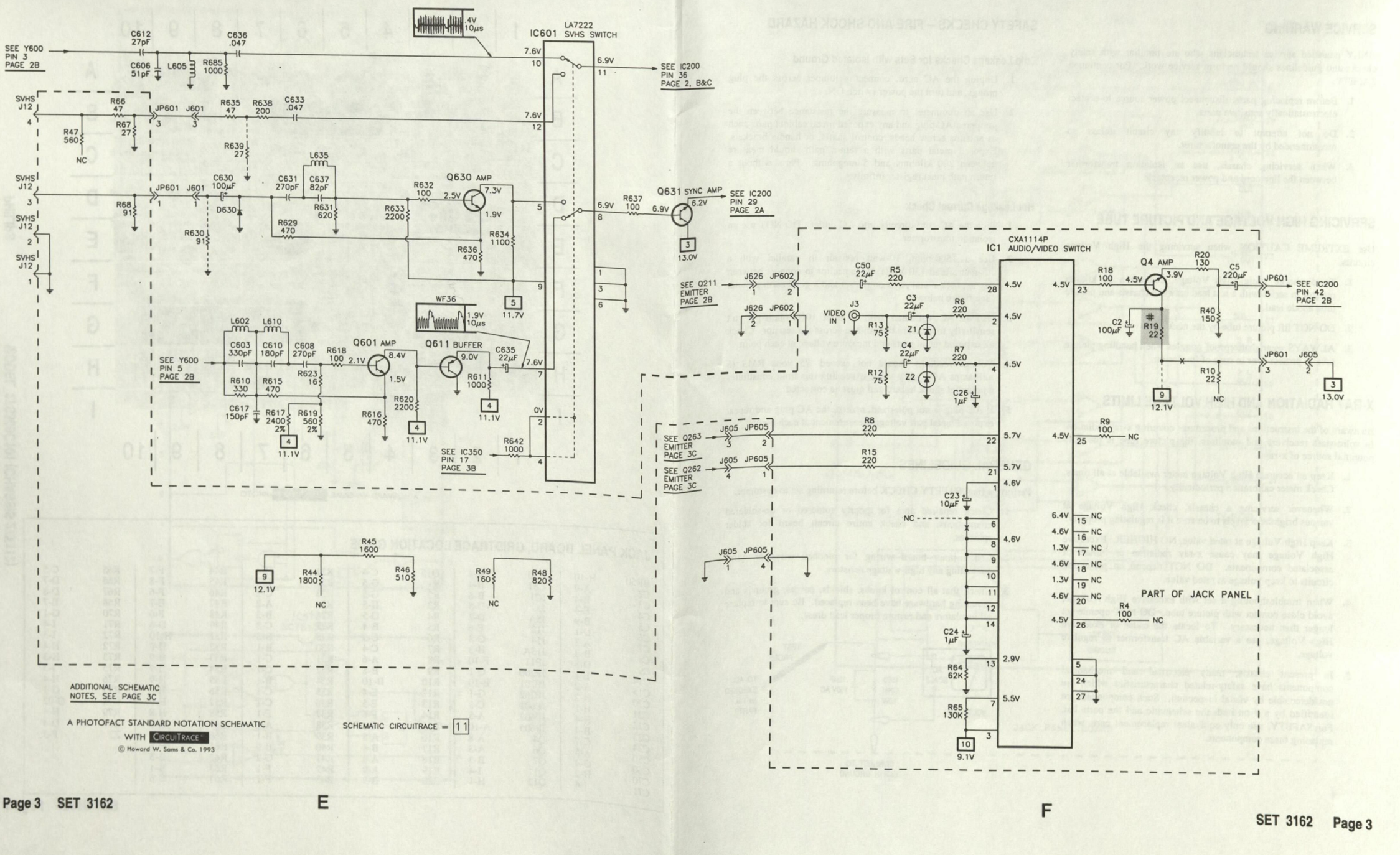
A

SYSTEM CONTROL SCHEMATIC

B

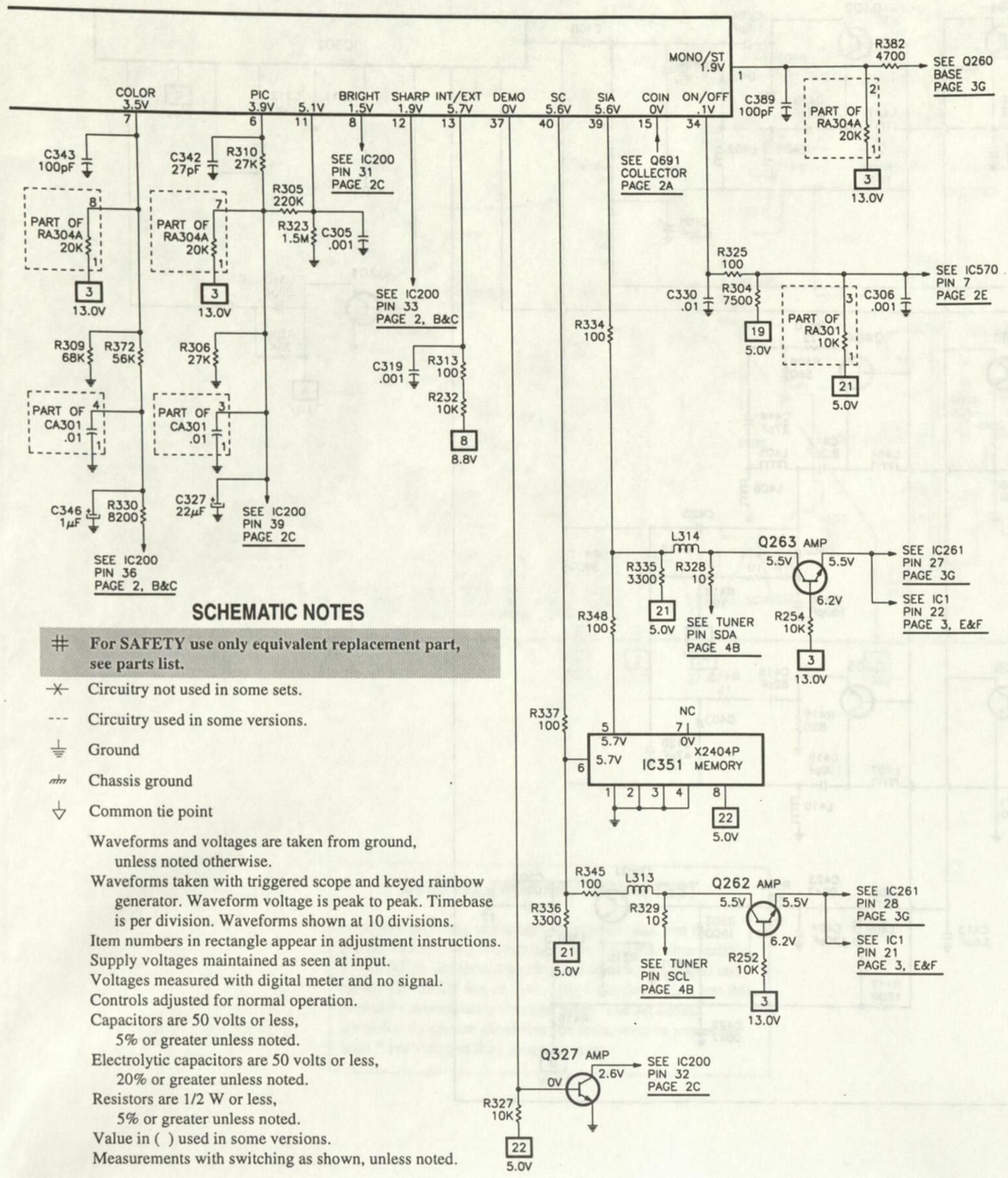

PART OF IR RECEIVER
IR90 REMOTE RECEIVER
IC350 MICROCOMPUTER
KEYBOARD
SW71 MENU
SW72 MENU
SW77 POWER
SW73 CH
SW74 CH
SW75 VOL
SW76 VOL
RA91
RA90
SEE IC403 PIN 11 PAGE 2E
SEE IC200 PIN 47 PAGE 2A
SEE Q510 EMITTER PAGE 2A
SEE Q500 EMITTER PAGE 2B
SEE AC INPUT PAGE 2E
Q328 AMP
IC353 ST6398B1 GRAPHICS GENERATOR
IC354 PC74HC157P GRAPHICS LOGIC GATE
IC352 CNX35U COUPLER
SEE Q408 BASE PAGE 2E
SEE IC260 PIN 3 PAGE 3G
SEE IC260 PIN 7 PAGE 3G
SEE IC601 PIN 4 PAGE 3E
SEE Q615 BASE PAGE 2D
SEE IC200 PIN 15 PAGE 2D
SEE IC200 PIN 17 PAGE 2D
SEE IC200 PIN 16 PAGE 2D
SEE IC200 PIN 41 PAGE 2C
△ TAKEN FROM COMMON TIE POINT
ADDITIONAL SCHEMATIC NOTES, SEE PAGE 3C
A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE
© Howard W. Sams & Co. 1993
SCHEMATIC CIRCUITRACE = 11

AUDIO / VIDEO SWITCHING SCHEMATIC


IC601 LA7222 SVHS SWITCH
IC1 CXA1114P AUDIO/VIDEO SWITCH
Q630 AMP
Q631 SYNC AMP
Q601 AMP
Q611 BUFFER
Q4 AMP
SEE Y600 PIN 3 PAGE 2B
SEE IC200 PIN 36 PAGE 2, B&C
SEE IC200 PIN 29 PAGE 2A
SEE IC350 PIN 17 PAGE 3B
SEE Q211 EMITTER PAGE 2B
SEE IC200 PIN 42 PAGE 2B
SEE Q263 EMITTER PAGE 3C
SEE Q262 EMITTER PAGE 3C
PART OF JACK PANEL
ADDITIONAL SCHEMATIC NOTES, SEE PAGE 3C
A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE
© Howard W. Sams & Co. 1993
SCHEMATIC CIRCUITRACE = 11

Line Reference Target LRT-BE4-V2

SYSTEM CONTROL SCHEMATIC continued



SCHEMATIC NOTES

- # For SAFETY use only equivalent replacement part, see parts list.
- Circuitry not used in some sets.
- --- Circuitry used in some versions.
- Ground
- Chassis ground
- Common tie point

Waveforms and voltages are taken from ground, unless noted otherwise.
Waveforms taken with triggered scope and keyed rainbow generator. Waveform voltage is peak to peak. Timebase is per division. Waveforms shown at 10 divisions.
Item numbers in rectangle appear in adjustment instructions.
Supply voltages maintained as seen at input.
Voltages measured with digital meter and no signal.
Controls adjusted for normal operation.
Capacitors are 50 volts or less, 5% or greater unless noted.
Electrolytic capacitors are 50 volts or less, 20% or greater unless noted.
Resistors are 1/2 W or less, 5% or greater unless noted.
Value in ( ) used in some versions.
Measurements with switching as shown, unless noted.

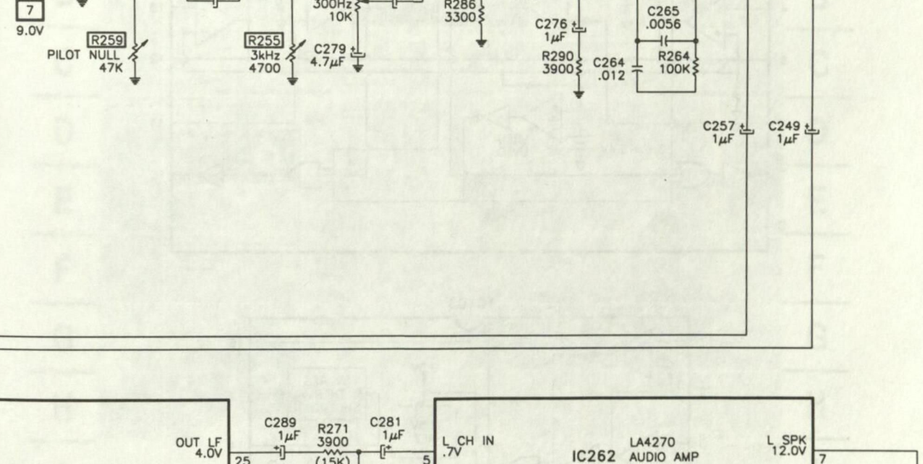
TUNER INFORMATION

TUNER VOLTAGE CHART

Pin	VHF Low Band	VHF High Band	UHF Band
AGC	4.2V	4.8V	4.8V
12V	12.0V	12.0V	12.0V
33V	.74V	1.5V	1.7V
5V	5.0V	5.0V	5.0V
SCL	5.7V	5.7V	5.7V
SDA	5.7V	5.7V	5.7V
AS	0V	0V	0V
GND	0V	0V	0V
IF	0V	0V	0V

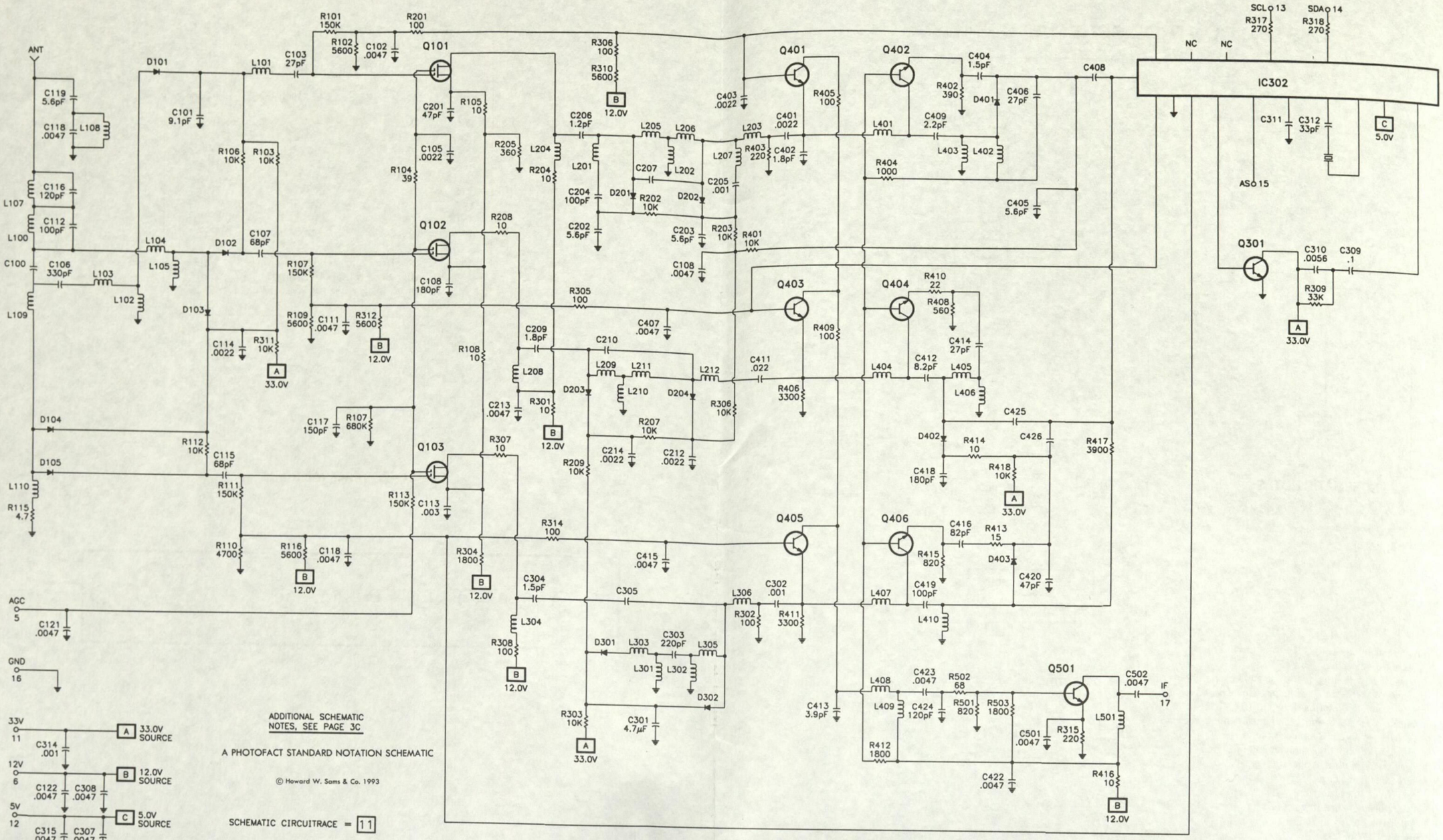
Note: VHF Low Band voltages taken on channel 2.
VHF High Band voltages taken on channel 7.
UHF Band voltages taken on channel 14.

TUNER TERMINAL GUIDE

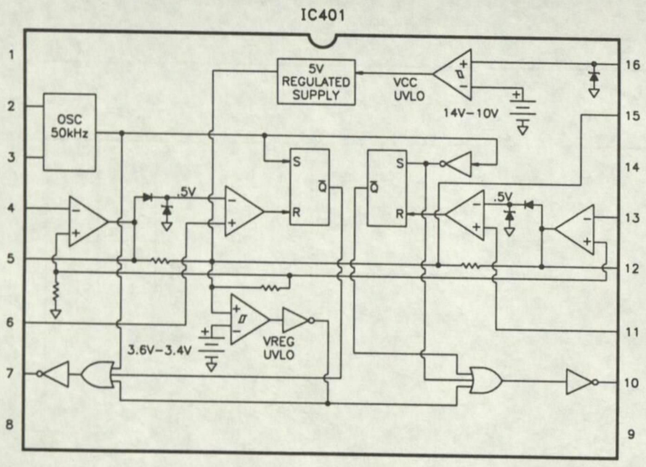


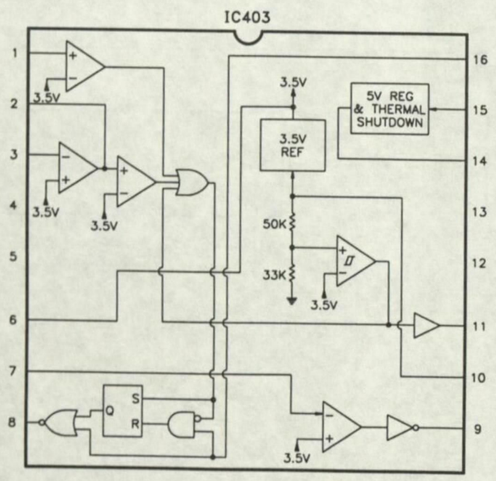
AUDIO SCHEMATIC

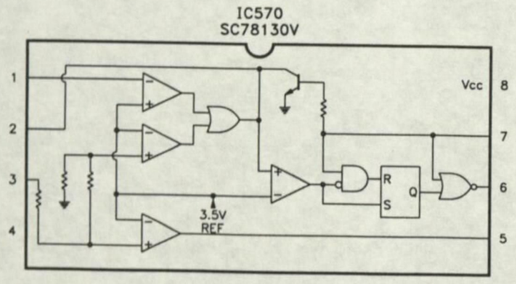
TUNER SCHEMATIC

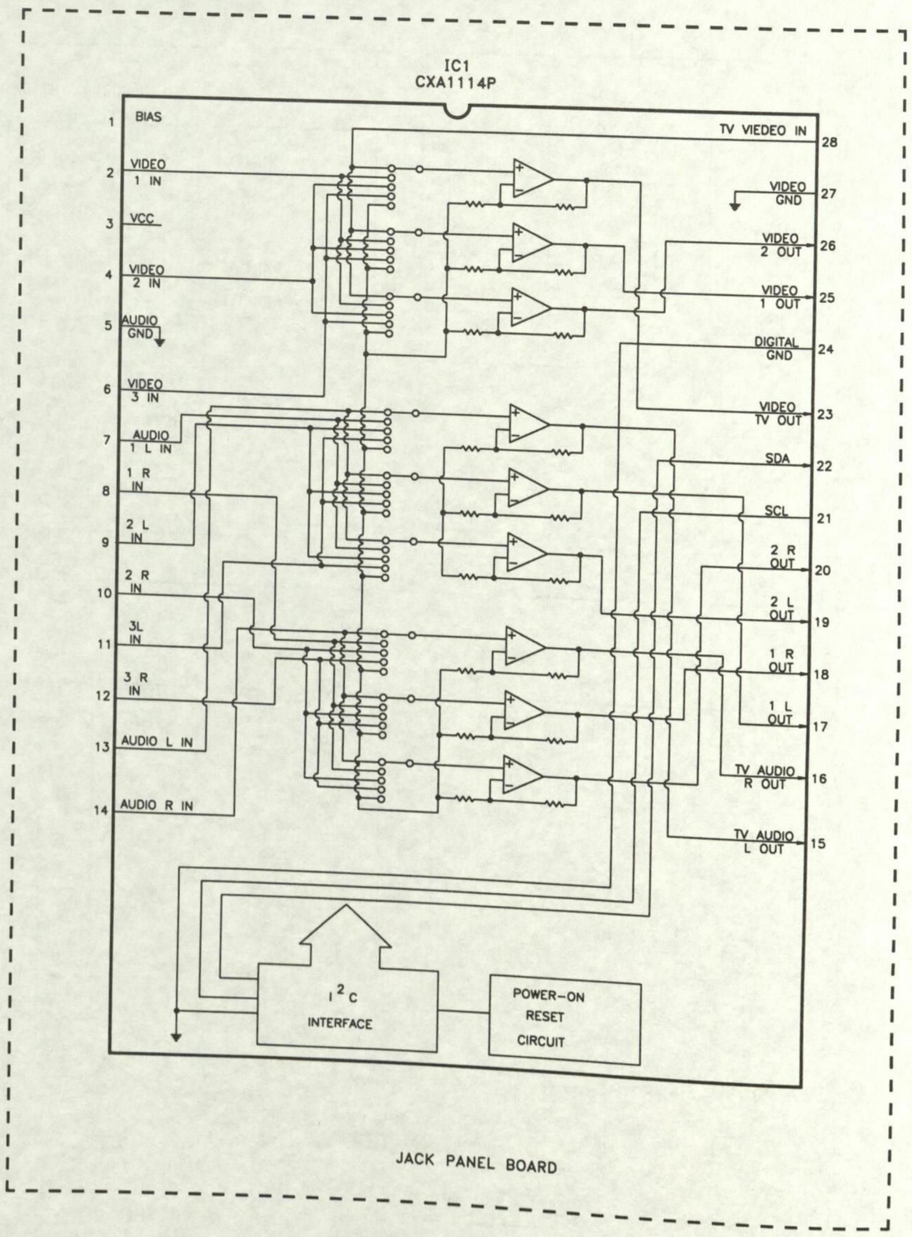


IC FUNCTIONS



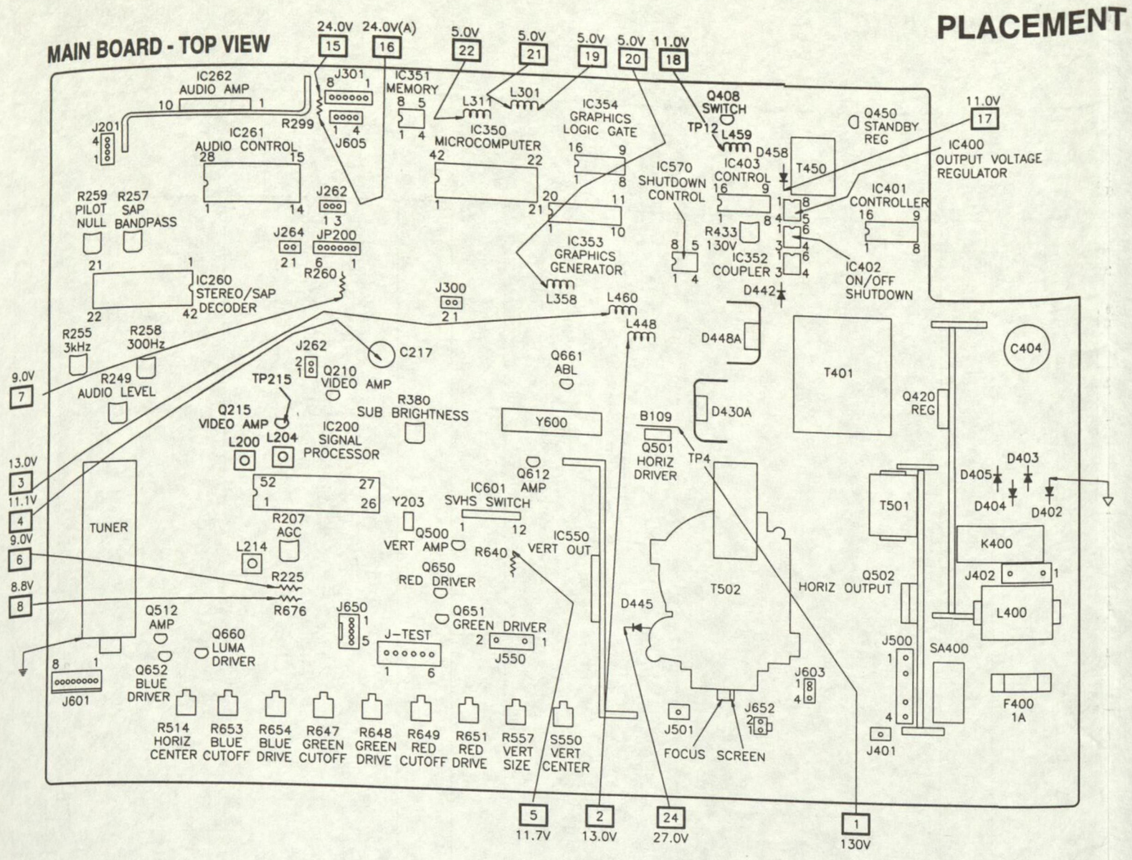




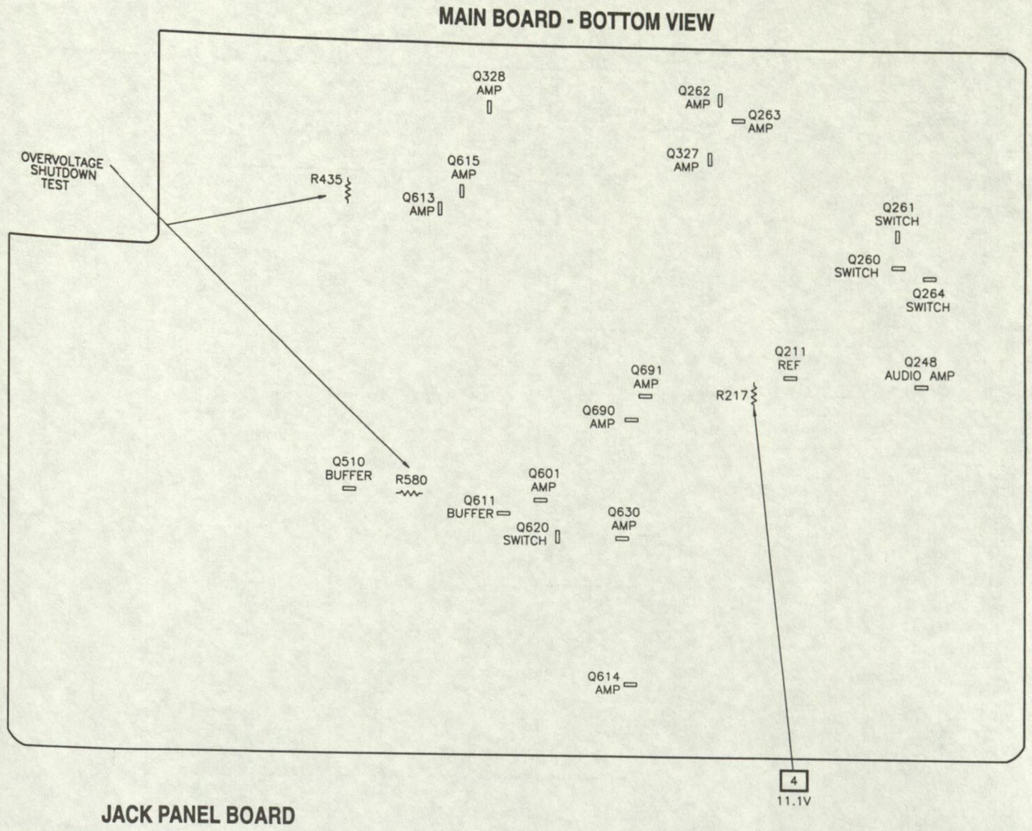


Line Reference Target LRT-8E4-V2

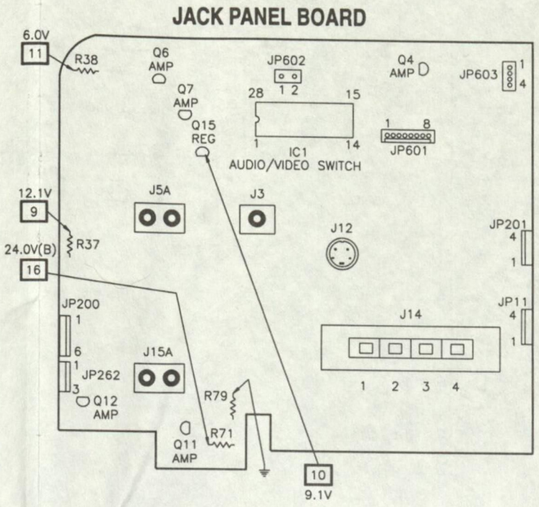
MAIN BOARD - TOP VIEW



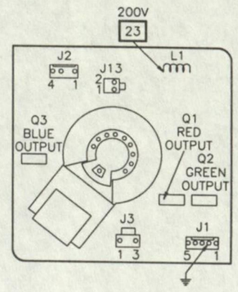
MAIN BOARD - BOTTOM VIEW



JACK PANEL BOARD



CRT BOARD



OVERVOLTAGE SHUTDOWN TEST

After any servicing to the high voltage circuits, test the shutdown circuit by momentarily placing a 920 ohm resistor across R580. Set should go into shutdown losing sound and raster. The SMPS has an overvoltage shutdown also, test this circuit by momentarily shorting R435. The set should immediately go into shutdown. To reset, remove power for least 5 seconds and then restore power.

SAFETY PRECAUTIONS

SERVICE WARNING

ONLY qualified service technicians who are familiar with safety checks and guidelines should perform service work. For continued SAFETY:

1. Before replacing parts, disconnect power source to protect electrostatically sensitive parts.
2. Do not attempt to modify any circuit unless so recommended by the manufacturer.
3. When servicing chassis, use an isolation transformer between the line cord and power receptacle.

SERVICING HIGH VOLTAGE AND PICTURE TUBE

Use EXTREME CAUTION when servicing the High Voltage circuits.

1. To discharge static High Voltage, connect a 10 kilohm resistor in series with a test lead between chassis and picture tube anode lead.
2. DO NOT lift picture tube by the neck.
3. ALWAYS wear shatterproof goggles when handling picture tube to protect eyes in case of implosion.

X-RAY RADIATION AND HIGH VOLTAGE LIMITS

Be aware of the instructions and procedures covering x-ray radiation. In solid-state receivers and monitors, the picture tube is the only potential source of x-rays.

1. Keep an accurate High Voltage meter available at all times. Check meter calibration periodically.
2. Whenever servicing a chassis, check High Voltage at various brightness levels to be sure it is regulating properly.
3. Keep High Voltage at rated value, NO HIGHER. Excessive High Voltage may cause x-ray radiation or failure of associated components. DO NOT depend on protection circuits to keep voltage at rated value.
4. When troubleshooting a set with excessive High Voltage, avoid close contact with picture tube. DO NOT operate set longer than necessary. To locate the cause of excessive High Voltage, use a variable AC transformer to regulate voltage.
5. In present chassis, many electrical and mechanical components have safety-related characteristics which are not detectable by visual inspection. Such components are identified by a # on both the schematic and the parts list. For SAFETY, use only equivalent replacement parts when replacing these components.

SAFETY CHECKS -- FIRE AND SHOCK HAZARD

Cold Leakage Checks for Sets with Isolated Ground

1. Unplug the AC cord, connect a jumper across the plug prongs, and turn the power switch ON.
2. Use an ohmmeter to measure the resistance between the jumpered AC plug and any exposed metal cabinet parts such as antenna screw heads, control shafts, or handle brackets. Exposed metal parts with a return path should measure between 200 kilohms and 5 megohms. Parts without a return path must register infinity.

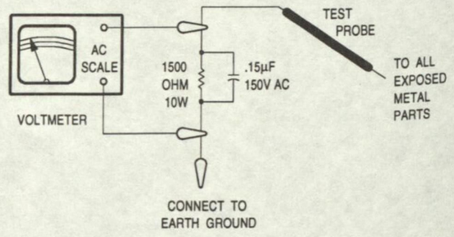
Hot Leakage Current Check

1. Plug the AC cord directly into AC outlet. DO NOT use an isolation transformer.
2. Use a 1500-ohm, 10-watt resistor in parallel with a .15-microfarad 150 Volts AC capacitor to connect between any exposed metal parts on the set and a good earth ground. (See figure below.)
3. Use an AC voltmeter with at least 1000 ohms-per-volt sensitivity to measure the voltage across the resistor. Check all exposed metal parts and measure voltage at each point.
4. Voltage readings should not exceed .75 volts RMS (5 milliamps AC). Any value exceeding this limit constitutes a potential shock hazard and must be corrected.
5. If AC plug is not polarized, reverse the AC plug and repeat exposed metal part voltage measurement at each point.

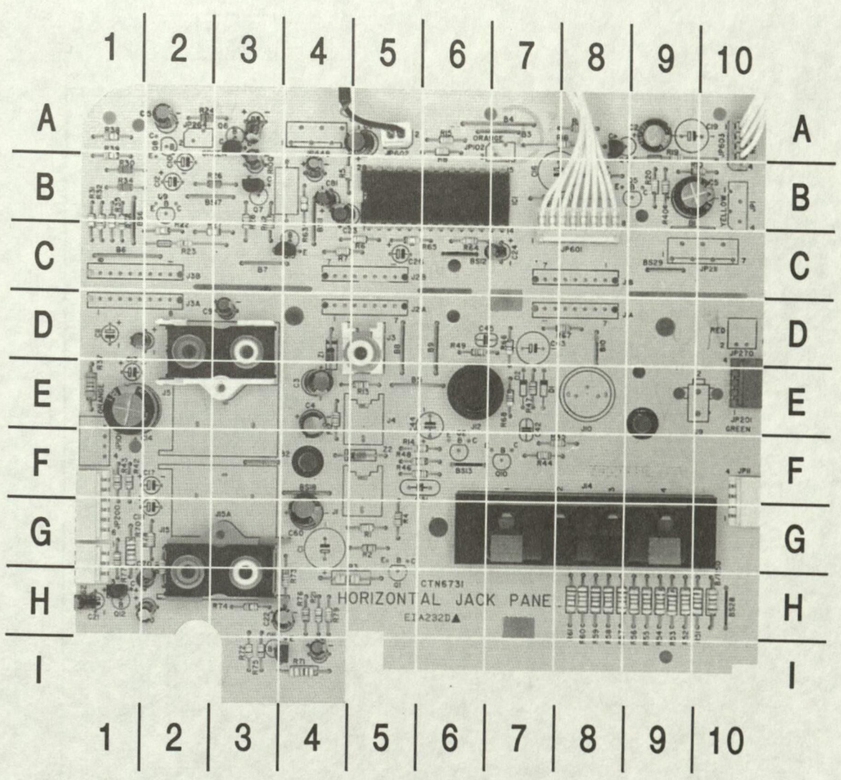
GENERAL GUIDELINES

Perform a final SAFETY CHECK before returning set to customer.

1. Check repaired area for poorly soldered or de-soldered connections, and check entire circuit board for solder splashes.
2. Check inner board wiring for pinched wires or wires contacting any high-wattage resistors.
3. Check that all control knobs, shields, covers, grounds and mounting hardware have been replaced. Be sure to replace all insulators and restore proper lead dress.



JACK PANEL BOARD

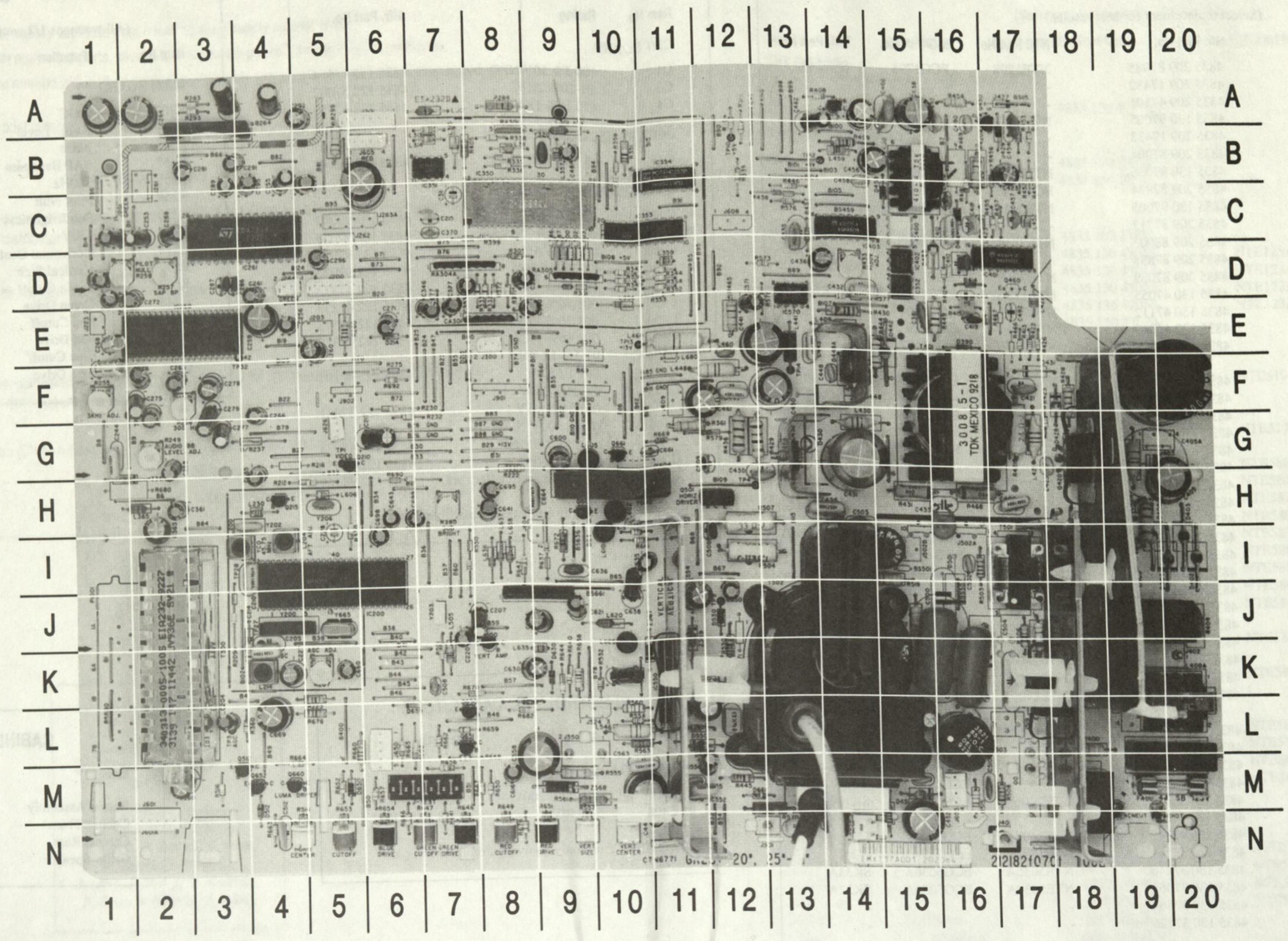


A HOWARD W. SAMS GRIDTRACE™ PHOTO

JACK PANEL BOARD, GRIDTRACE LOCATION GUIDE

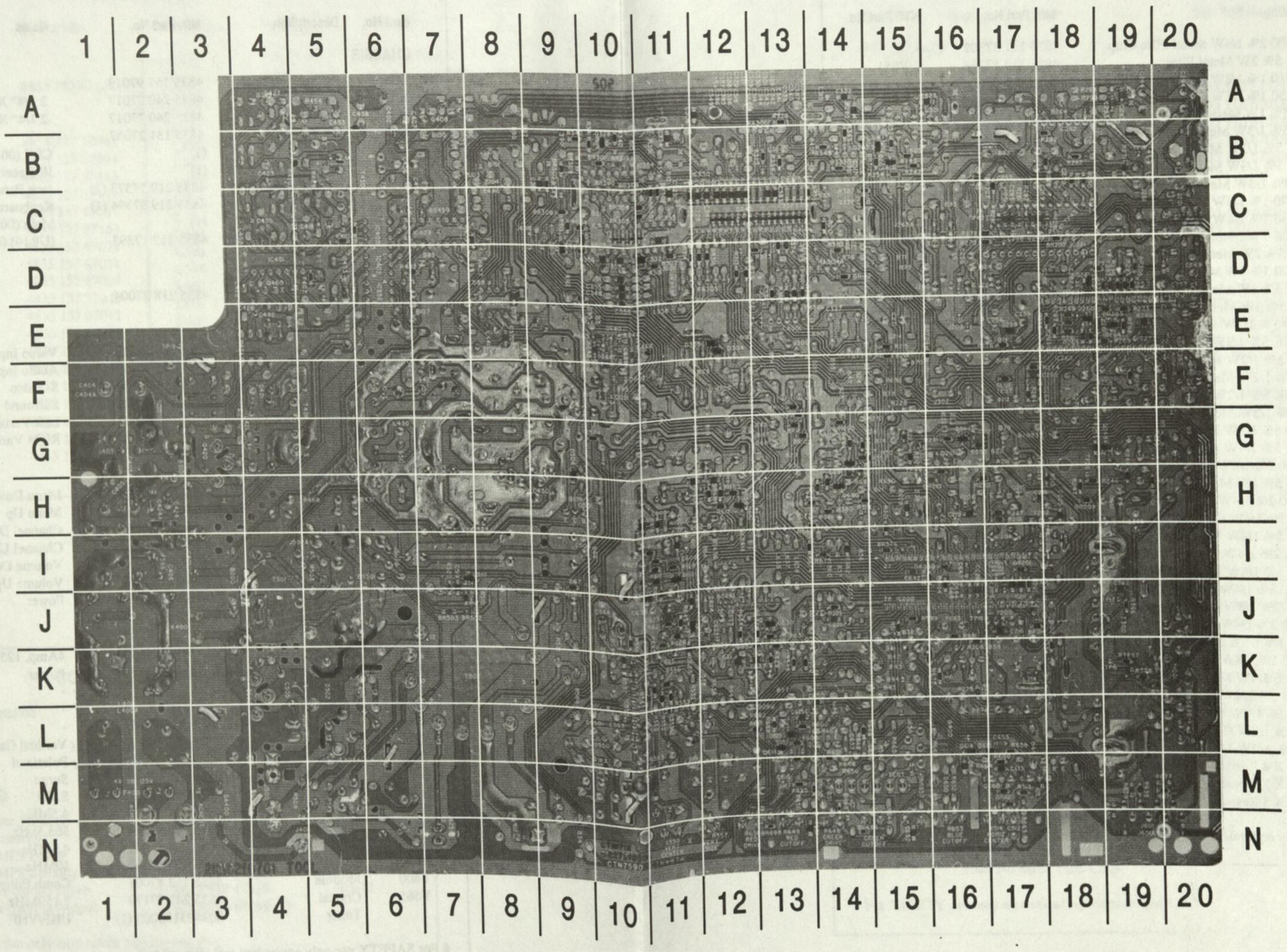
BR50	H-10	C80	B-4	Q15	C-4	R21	H-4	R44	F-7	R65	C-5
C2	A-9	C81	B-4	R1	G-5	R22	C-2	R45	F-8	R66	D-7
C3	E-4	IC1	B-6	R2	G-5	R23	C-2	R46	F-6	R67	D-8
C4	E-4	J3	D-5	R3	H-5	R24	A-2	R47	E-7	R68	E-7
C5	B-9	J5A	D-2	R4	G-5	R26	B-3	R48	F-6	R70	G-1
C6	D-1	J12	E-6	R5	B-4	R27	C-3	R49	D-6	R71	I-4
C7	A-3	J14	G-8	R6	C-5	R28	B-3	R51	H-10	R72	I-3
C8	B-3	J15A	H-3	R7	C-4	R30	B-1	R52	H-9	R72	H-4
C9	D-3	JP11	F-10	R8	A-6	R31	C-1	R53	H-9	R73	H-3
C14	E-1	JP200	G-1	R9	B-8	R32	C-1	R54	H-9	R75	I-3
C15	A-2	JP201	E-10	R10	B-10	R34	B-1	R55	H-9	R76	H-4
C20	H-2	JP262	G-1	R12	E-4	R35	C-1	R56	H-9	R77	G-1
C21	H-1	JP601	C-8	R13	E-5	R36	C-1	R57	H-8	R78	G-02
C22	H-4	JP602	A-5	R14	F-6	R37	E-1	R58	H-8	R79	H-4
C23	B-4	JP605	A-10	R15	A-6	R38	A-1	R59	H-8	Z1	D-4
C24	C-7	Q4	A-8	R16	A-8	R39	B-1	R60	H-8	Z2	F-5
C50	A-5	Q6	A-3	R17	B-8	R40	B-9	R61	H-8		
C60	G-4	Q7	B-3	R18	A-8	R41	G-2	R62	B-3		
C70	H-2	Q11	I-4	R19	A-9	R42	F-1	R63	B-4		
C71	I-4	Q12	H-1	R20	B-9	R43	F-1	R64	C-6		

MAIN BOARD - TOP VIEW



A HOWARD W. SAMS GRIDTRACE™ PHOTO

MAIN BOARD - BOTTOM VIEW



A HOWARD W. SAMS GRIDTRACE™ PHOTO

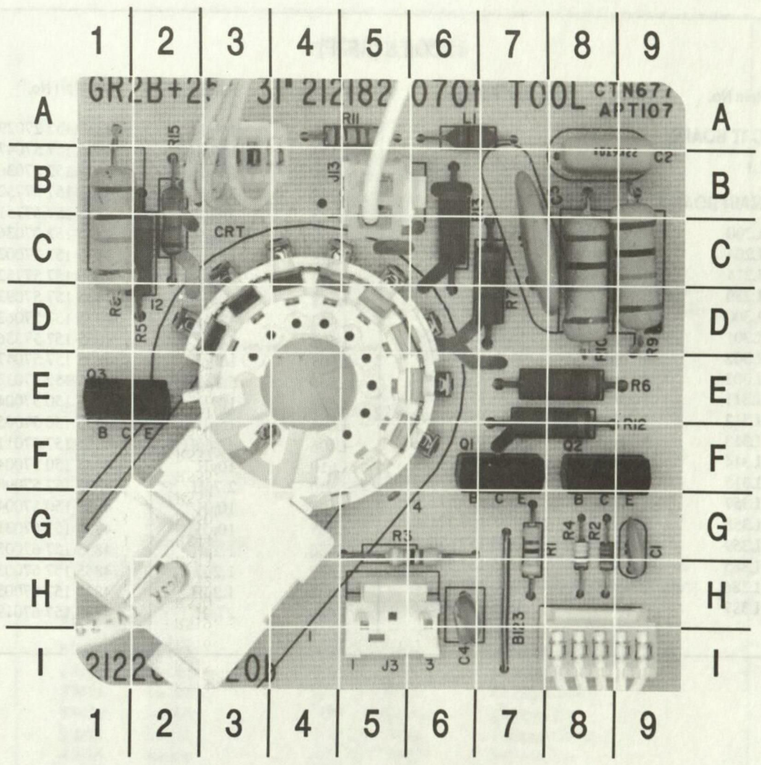
MAIN BOARD - TOP VIEW, GRIDTRACE LOCATION GUIDE

C204	L-3	C400	M-20	C512	N-4	D661	M-12	L405	G-19	R283	A-3	R446	C-13	R648	N-7
C205	K-4	C401	I-19	C530	J-12	F400	M-20	L409	E-14	R284	A-8	R449	E-16	R649	N-8
C207	J-8	C402	A-15	C548	K-11	IC200	E-2	L421	G-17	R293	A-3	R450	B-17	R650	M-8
C210	I-4	C404	F-20	C549	L-12	IC260	E-2	L422	E-17	R299	B-15	R451	N-15	R651	N-9
C214	K-4	C405	H-20	C550	L-12	IC261	C-4	L423	C-17	R301	D-9	R452	B-17	R652	M-5
C215	C-7	C406	I-19	C552	M-11	IC262	A-3	L430	G-14	R304	B-12	R453	B-17	R653	N-5
C217	G-6	C407	A-14	C553	L-11	IC350	C-9	L431	H-13	R305	D-8	R454	A-16	R654	N-6
C220	J-7	C408	H-17	C554	J-11	IC351	B-7	L432	G-13	R314	B-12	R455	C-17	R656	M-7
C227	K-4	C410	D-16	C555	M-12	IC352	D-15	L441	E-13	R330	I-5	R456	C-17	R657	M-6
C244	G-1	C411	E-16	C556	K-10	IC353	C-11	L448	F-12	R335	B-8	R457	C-17	R659	L-7
C249	D-1	C412	C-16	C558	L-9	IC354	B-11	L452	C-17	R336	B-8	R458	B-17	R660	L-5
C252	C-1	C413	E-16	C563	M-10	IC400	C-15	L459	B-14	R338	B-8	R465	E-12	R661	G-9
C253	C-2	C418	C-16	C571	E-12	IC401	D-17	L460	E-11	R339	B-12	R468	H-16	R662	L-7
C255	B-4	C420	C-16	C600	G-9	IC402	D-15	L502	I-15	R344	D-11	R501	K-7	R663	N-4
C256	E-4	C421	F-17	C616	M-8	IC403	C-14	L503	L-16	R347	D-10	R502	L-6	R664	M-4
C257	D-1	C423	B-17	C621	J-9	IC550	K-11	L505	K-7	R349	D-10	R503	I-16	R665	L-6
C258	G-2	C424	H-19	C630	K-9	IC570	E-13	L546	L-10	R351	B-10	R504	I-12	R667	M-8
C259	E-4	C425	H-18	C634	J-9	IC601	J-9	L602	H-10	R352	D-11	R505	J-17	R668	L-7
C260	E-5	C430	H-13	C635	I-11	J200	D-5	L605	G-10	R353	D-11	R506	J-17	R669	G-11
C261	D-4	C431	G-14	C636	I-9	J201	C-1	L606	H-5	R354	D-11	R507	I-12	R670	K-7
C262	F-1	C432	D-14	C638	J-10	J262	C-5	L610	I-10	R356	D-10	R508	M-17	R672	I-9
C263	F-2	C433	I-16	C641	H-8	J264	D-4	L620	J-10	R358	B-10	R509	K-15	R676	L-5
C266	F-4	C434	H-14	C643	H-6	J300	E-8	L625	K-10	R360	L-3	R511	J-15	R678	N-8
C268	E-1	C435	C-13	C660	K-5	J301	A-6	L635	K-9	R361	G-11	R514	N-4	R682	L-8
C271	E-6	C436	D-14	C661	G-11	J401	N-17	L636	I-8	R371	D-8	R515	M-16	R690	H-6
C272	D-2	C438	A-15	C663	N-13	J402	K-20	L637	I-8	R372	D-8	R516	M-3	R692	F-6
C274	F-2	C441	E-13	C664	H-9	J500	M-17	L638	I-8	R380	H-7	R519	I-15	RA301	B-8
C275	F-2	C442	F-14	C669	L-4	J501	N-13	Q210	G-5	R388	H-19	R530	K-12	RA304A	D-7
C276	F-2	C443	E-13	C695	H-8	J550	L-9	Q215	H-4	R399	C-8	R532	K-10	RA305	D-9
C277	G-2	C444	M-10	C698	I-6	J601	M-2	Q408	A-14	R400	L-18	R543	K-10	S550	N-10
C278	F-3	C445	M-11	C699	H-7	J603	M-16	Q420	G-18	R404	J-20	R544	J-11	SA400	M-18
C279	F-3	C447	F-12	CA301	E-8	J605	B-6	Q450	A-17	R405	B-8	R550	I-7	T401	F-16
C280	B-6	C448	F-14	D214	E-6	J625	N-14	Q500	K-8	R408	A-14	R554	L-10	T450	B-15
C281	B-3	C450	F-13	D215	F-7	J626	G-5	Q501	H-12	R409	B-14	R555	M-9	T501	I-17
C282	A-3	C451	M-15	D390	E-16	J650	L-6	Q502	K-17	R412	D-16	R557	N-9	T502	K-14
C284	A-2	C452	N-15	D402	I-20	J-TEST	M-7	Q512	M-3	R413	E-17	R560	L-10	TP4	H-12
C286	D-3	C453	A-16	D403	I-20	K400	J-19	Q612	H-9	R414	D-16	R561	M-10	TP12	B-14
C287	D-3	C454	B-17	D404	I-20	L200	I-3	Q650	L-7	R415	E-16	R563	L-10	TP215	H-4
C288	C-2	C456	B-15	D405	I-19	L204	I-4	Q651	L-7	R418	C-16	R564	K-12	Y200	J-4
C289	B-3	C457	C-17	D408	J-18	L214	K-4	Q652	M-4	R420	B-16	R570	M-13	Y202	H-4
C291	B-3	C458	C-14	D418	C-16	L230	H-4	Q660	M-4	R421	G-17	R573	D-13	Y203	J-7
C292	A-5	C460	F-12	D428	F-18	L301	B-9	Q661	G-10	R422	E-17	R576	C-13	Y206	H-5
C294	A-1	C461	F-12	D429	B-17	L311	B-8	R207	K-5	R423	G-18	R577	E-14	Y320	B-9
C295	B-4	C462	A-14	D430A	G-13	L312	A-7	R209	J-3	R424	G-19	R578	E-13	Y600	H-10
C297	B-5	C481	B-9	D442	F-15	L313	B-7	R212	H-5	R426	E-17	R579	G-12	Y665	J-5
C299	A-4	C490	A-16	D445	L-11	L314	B-7	R222	G-8	R427	F-19	R606	L-8	Z361	G-1
C325	D-8	C502	I-16	D448A	F-15	L315	B-7	R225	K-5	R428	F-18	R615	I-10	Z369	K-11
C327	E-7	C503	H-14	D451	M-15	L357	B-9	R230	F-6	R429	G-12	R616	I-10	Z567	K-11
C346	E-7	C504	K-16	D453	D-16	L358	E-10	R232	G-6	R430	E-14	R637	I-9	Z568	M-9
C353	D-7	C505	K-17	D458	C-15	L359	D-11	R249	G-2	R431	H-15	R638	K-9		
C360	M-2	C506	I-12	D509	K-15	L365	H-2	R255	F-1	R433	D-14	R640	K-9		
C361	H-2	C507	K-16	D512	M-4	L386	D-9	R257	D-2	R436	G-12	R641	N-7		
C365	H-2	C508	K-7	D530	J-12	L387	D-9	R258	F-2	R437	C-13	R642	I-8		
C370	C-7	C509	G-12	D550	L-11	L400	K-20	R259	D-1	R438	C-13	R644	K-9		
C380	E-9	C510	M-16	D630	K-9	L401	G-19	R260	E-5	R444	F-15	R646	N-6		
C381	E-15	C511	L-15	D650	M-5	L402	G-19	R275	F-6	R445	M-12	R647	N-7		

MAIN BOARD - BOTTOM VIEW, GRIDTRACE LOCATION GUIDE

C209	J-17	C349	C-12	D504	G-9	R306	D-13	R580	I-9
C211	J-17	C350	D-10	D513	L-17	R307	D-13	R599	J-15
C212	G-16	C351	D-10	D614	L-16	R309	D-13	R600	M-17
C213	J-17	C352	C-13	D615	L-13	R310	D-13	R601	M-14
C216	J-17	C354	C-12	GLUE TEST	F-17	R312	H-13	R602	L-13
C218	H-17	C355	D-10	Q211	G-16	D313	D-12	R603	L-13
C219	H-16	C356	D-10	Q248	G-19	R316	D-12	R604	C-9
C221	J-14	C357	C-12	Q260	E-18	R317	D-11	R605	D-9
C225	H-18	C358	C-12	Q261	D-18	R318	D-11	R607	M-13
C226	J-16	C359	D-10	Q262	B-15	R319	H-14	R608	D-10
C230	J-17	C362	J-19	Q263	B-15	R320	D-11	R609	H-12
C251	C-17	C366	C-11	Q264	E-19	R321	I-15	R610	H-11
C264	F-17	C367	C-10	Q227	C-14	R323	D-13	R611	I-11
C265	F-17	C368	C-10	Q228	B-10	R325	B-13	R612	H-12
C267	F-20	C369	C-10	Q510	I-7	R327	C-15	R613	L-13
C269	C-17	C385	C-12	Q601	I-11	R328	K-19	R614	J-11
C270	C-18	C386	C-12	Q611	J-11	R329	K-19	R617	I-11
C273	E-19	C387	C-13	Q613	D-9	R331	D-13	R618	I-11
C283	A-19	C426	D-4	Q614	L-13	R334	B-13	R619	I-11
C285	C-17	C455	C-4	Q615	C-10	R337	B-14	R620	J-11
C293	A-19	C519	I-7	Q620	J-11	R340	B-10	R621	J-11
C301	C-13	C572	E-8	Q630	J-13	R341	B-10	R623	I-11
C302	C-11	C573	D-8	Q631	H-12	R342	B-9	R624	K-11
C305	C-13	C603	H-11	Q690	H-14	R343	B-9	R625	I-16
C306	A-12	C606	H-12	Q691	G-14	R345	B-14	R626	J-11
C309	C-13	C608	I-11	R216	K-16	R348	B-14	R627	H-14
C314	C-13	C610	I-11	R218	K-16	R357	G-14	R628	H-15
C316	C-13	C612	H-11	R210	C-14	R366	J-19	R629	K-13
C317	B-14	C613	M-17	R211	J-17	R374	D-13	R631	J-13
C318	B-9	C614	M-16	R213	H-18	R381	H-14	R632	J-13
C319	C-12	C615	L-13	R214	F-15	R382	D-14	R633	K-13
C320	C-12	C617	H-11	R215	E-15	R407	D-5	R634	J-12
C321	C-12	C622	J-11	R217	G-15	R410	C-5	R635	M-19
C322	A-14	C623	K-11	R218	H-16	R411	C-6	R636	K-13
C323	A-16	C624	J-12	R219	H-17	R432	D-7	R643	J-11
C326	C-13	C625	J-11	R220	H-17	R435	C-8	R645	J-11
C328	C-12	C631	K-12	R221	J-14	R510	J-8	R655	M-13
C329	C-11	C633	J-12	R223	G-15	R513	M-17	R658	L-17
C330	C-13	C637	K-13	R224	K-18	R517	J-15	R666	L-14
C331	C-11	C642	I-15	R227	H-17	R518	J-7	R673	K-16
C332	D-11	C650	L-14	R231	G-16	R520	I-7	R674	I-13
C333	C-13	C651	N-13	R233	G-16	R523	M-17	R675	I-14
C334	B-11	C652	N-15	R251	C-17	R537	K-10	R681	J-16
C336	C-12	C655	L-17	R264	F-17	R548	K-13	R685	H-12
C339	C-13	C656	L-14	R265	F-17	R549	H-14	R689	L-13
C340	C-13	C657	L-14	R267	F-20	R551	J-10	R691	H-14
C341	C-13	C662	I-14	R269	C-17	R552	K-11	R693	H-14
C342	C-13	C666	J-16	R270	C-18	R556	K-11	R694	G-14
C343	C-13	C667	I-16	R273	E-19	R559	K-11	R695	G-14
C344	C-13	C668	J-16	R283	A-19	R565	K-11	R696	H-14
C345	C-12	D259	E-17	R285	C-17	R566	L-10	RTEST	K-19
C347	C-12	D304	E-12	R293	A-19	R568	K-11	Z261	E-19
C348	D-10	D305	E-12	R302	D-11	R574	G-10		

CRT BOARD



A HOWARD W. SAMS GRIDTRACE™ PHOTO

CRT BOARD, GRIDTRACE LOCATION GUIDE

C1	G-9	J2	B-3	Q3	E-1	R5	C-2	R10	C-8
C2	B-8	J13	B-5	R1	G-7	R6	E-8	R11	A-5
C3	C-7	L1	A-6	R2	G-8	R7	C-7	R12	F-8
C4	H-6	Q1	F-7	R3	G-5	R8	C-1	R13	C-6
J1	I-8	Q2	F-8	R4	G-8	R9	C-9	R15	C-2

PARTS LIST

Important Parts Information

- The parts listed here are those not usually available from a well-stocked supply cabinet or bin.
- Where items may be replaced with equivalent parts, several alternates are shown from participating vendors.
- On the parts lists, safety items are marked with a # to remind you that only exact replacements are recommended for these items.
- When ordering parts, state the model number, part number, and description.

Obtaining Parts

Many of these parts are available from your local Sams authorized distributor or the manufacturer of the equipment. Call Sams for the name of your nearest distributor:

800-428-7267

Or consult the Sams *Annual Index* for the address of the original equipment manufacturer.

Participating Vendors

Information on test equipment and replacement parts is listed in these pages for the following participating vendors. Consult the Sams *Annual Index* for their current address.

- Custom Components Corporation (Chek-A-Color)
- NTE Electronics, Inc. (NTE)
- Philips ECG Company (ECG)
- PTS Electronics Corporation (PTS)
- Sencore, Inc.
- Thomson Consumer Electronics, Inc. (SK, TCE)

Created with pride by the employees of Howard W. Sams & Company.

J. Barker, B. Bryant, B. Buchanan, T. Clensy, D. Cobb, G. Farrell, B. Fink, M. Herkless, J. Kocha, J. Limp, F. Malek, B. Medaris, R. Raus, B. Skinner, J. Young

SEMICONDUCTORS

(Select replacement for best results.)

Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
CRT BOARD					
Q1 Thru Q3	S6022B	4835 130 47796	-	-	-
IR RECEIVER BOARD					
D90	-	4835 130 37516	-	-	-
D91	-	4835 130 37541	-	-	-
JACK PANEL BOARD					
IC1	CXA1114P	4835 209 87952	-	-	-
Q4	-	4835 130 47055	NTE123AP*	ECG123AP*	SK3854*
Q6, 7	-	4835 130 47055	NTE123AP*	ECG123AP*	SK3854*
Q11, 12	-	4835 130 47055	NTE123AP*	ECG123AP*	SK3854*
Q15	-	4835 130 47055	NTE123AP*	ECG123AP*	SK3854*
Z1, 2	-	4835 130 37074	-	-	-
MAIN BOARD					
D214, 15	-	4835 130 37048	NTE519	ECG519	SK3100
D259	-	4835 130 37066	-	-	-
D304, 05	-	4835 130 37066	-	-	-
D390	-	4835 130 37048	NTE519	ECG519	SK3100
D402 Thru D405	-	4835 130 37059	NTE580	ECG580	SK5036
D408	-	4835 130 37052	NTE580	ECG580	SK5036
D418	-	4835 130 37058	NTE587	ECG587	SK9937
D428	-	4835 130 37052	NTE580	ECG580	SK5036
D429	-	4835 130 37058	NTE587	ECG587	SK9937
D430	-	4835 130 37563	NTE598	ECG598	SK9859
D442	-	4835 130 37059	NTE580	ECG580	SK5036
D445	-	4835 130 37052	NTE580	ECG580	SK5036
D448	-	4835 130 37059	NTE580	ECG580	SK5036
D448A	-	4835 130 37663	-	-	-
D451	-	4835 130 37052	NTE580	ECG580	SK5036
D453	-	4835 130 37182	-	ECG125	-
D458	-	4835 130 37058	NTE587	ECG587	SK9937
D502	-	4835 130 37095	-	-	-
D504	-	4835 130 37066	-	-	-
D509	-	4835 130 37094	NTE580	ECG580	SK5036
D512	-	4835 130 37048	NTE519	ECG519	SK3100
D530	-	4835 130 37058	NTE587	ECG587	SK9937
D550	-	4835 130 37094	NTE580	ECG580	SK5036
D601, 02	-	4835 130 37066	-	-	-
D613 Thru D615	-	4835 130 37066	-	-	-
D630	-	4835 130 37048	NTE519	ECG519	SK3100
D650	-	4835 130 37058	NTE587	ECG587	SK9937
D659	-	4835 130 37048	NTE519	ECG519	SK3100
D661	-	4835 130 37053	NTE552	ECG552	SK9000
IC200	LA7672	4835 209 88005	-	-	-
IC260	CXA1124BS	4835 209 88002	-	-	-
IC261	TDA7318	4835 209 88004	-	-	-

* Lead configuration may vary from original.

PARTS LIST continued

COILS (RF-IF)

Item No.	Rating	Mfr. Part No.
CRT BOARD		
L1	47µH	4835 157 57763
MAIN BOARD		
L200	45.75MHz	4835 157 57485
L204	45.75MHz	4835 157 57594
L214	45.5MHz	4835 157 57113
L230	27µH	4835 157 57119
L300	4.76µH	4835 157 67011
L301	27µH	4835 157 57154
L302	4.76µH	4835 157 67011
L303	4.76µH	4835 157 67011
L311	1.2µH	4835 157 67003
L312	1.2µH	4835 157 57048
L313	4.76µH	4835 157 67011
L314	4.76µH	4835 157 67011
L315	4.76µH	4835 157 67011
L357	27µH	4835 157 57119
L358	27µH	4835 157 57119
L359	27µH	4835 157 67019
L365	1.2µH	4835 157 57048
L386	27µH	4835 157 57266
L387	27µH	4835 157 57266
L405	1.8µH	4835 152 27029
L409	100µH	4835 157 57047
L421	.70µH	4835 152 27036
L422	2.2µH	4835 157 57752
L423	.68µH	4835 157 57751
L430	.70µH	4835 152 27036
L448	12µH	4835 152 27002
L452	2.2µH	4835 157 57752
L459	10µH	4835 157 57093
L460	42µH	4835 157 57063
L502	42µH	4835 157 57336
L505	100µH	4835 157 57047
L546	5.7µH	4835 152 27038
L602	10µH	4835 150 57004
L605	15µH	4835 150 57005
L606	4.76µH	4835 157 67011
L610	10µH	4835 150 57004
L620	2.7µH	4835 157 57098
L625	10µH	4835 150 57004
L635	10µH	4835 157 67031
L636	1.2µH	4835 157 67003
L637	1.2µH	4835 157 67003
L638	1.2µH	4835 157 67003
L680	27µH	4835 157 67019

COILS & TRANSFORMERS

	Item No.	Function		Mfr. Part No.	On-Unit No.
#	DY1	Yoke 110°	Horiz 1.3mH Vert 15.5mH	4835 150 17086	368005-7
	MAIN BOARD				
#	L400	Line Filter		4835 152 17001	361915-07
	L503	Linearity		4835 150 57002	-
#	T401	SMPS Power		4835 148 87276	-
#	T450	SMPS Standby		4835 148 87251	410-4
	T501	Horizontal Drive		4835 142 47015	403-11
#	T502	Horizontal Output		4835 140 67058 (1)	-

For SAFETY use only equivalent replacement part.
(1) Includes focus and screen controls.

RESISTORS

	Item No.	Rating	Mfr. Part No.	NTE Part No.
	CRT BOARD			
	R2	47 2% 1/4W Carbon Film	-	-
		47 5% 1/4W Carbon Film	4835 110 57324	QW047
#	R8	15K 5% 3W Metal Film	4835 116 67018	3W315
#	R9	15K 5% 3W Metal Film	4835 116 67018	3W315
#	R10	15K 5% 3W Metal Film	4835 116 67018	3W315
#	R11	100 5% 1/2W Metal Film	4835 116 67089	HW110
	JACK PANEL BOARD			
#	R1	2200 5% 1/8W Carbon Film	4835 110 67026	EW222
#	R19	22 5% 1/8W Carbon Film	4835 110 67078	EW022
#	R37	1 5% 1/2W Metal Film	4835 116 57109	HW1D0
	KEYBOARD			
	R71	1000 1% 1/8W Metal Film Chip	4835 111 27011	-
	R72	2000 1% 1/8W Metal Film Chip	4835 111 27022	-
	R73	10K 1% 1/8W Metal Film Chip	4835 111 27027	-
	R74	20K 1% 1/8W Metal Film Chip	4835 111 27023	-
	R75	40.2K 1% 1/8W Metal Film Chip	4835 111 27026	-
	R76	80.6K 1% 1/8W Metal Film Chip	4835 111 27015	-
	R77	4020 1% 1/8W Metal Film Chip	4835 111 27025	-
	MAIN BOARD			
#	R217	22 5% 1/4W Metal Film Chip	4835 111 37077	-
#	R225	82 5% 1/2W Metal Film	4835 116 67093	HW082
#	R260	75 5% 1/2W Carbon Film	4835-110-47031	HW075
#	R283	2.2 5% 1/8W Carbon Film	4835 110 67081	EW2D2
#	R293	2.2 5% 1/8W Carbon Film	4835 110 67081	EW2D2
#	R299	1 5% 1W Metal Film	4835 116 57117	1W1D0
	R301	12.1K 1% 1/8W Metal Film	4835 110 67187	-
#	R360	15 5% 1/8W Carbon Film	4835 110 67076	EW015
#	R361	18K 5% 1W Metal Film	4835 116 57036	1W318
#	R400	4.7M 5% 1/2W Metal Film	4835 116 57009	HW547
#	R404	11.9 PTC Cold	4835 116 47001	-
#	R409	68 5% 1/3W Metal Film	4835 116 57292	-
	R410	470K 2% 1/4W Carbon Film Chip	4835 111 37349	-
	R414	5.76K 1% 1/8W Metal Film	4835 116 57033	-
#	R420	56K 5% 1W Metal Film	4835 116 57039	1W356
#	R421	24 5% 3W Metal Film	4835 116 57043	3W024
#	R424	.27 5% 1W Metal Film	4835 116 57056	1WD27
#	R427	.2 5% 1W Metal Film	4835 116 57054	-
#	R428	.2 5% 1W Metal Film	4835 116 57054	-
#	R429	51 5% 2W Metal Film	4835 110 57258	2W051
	R430	105K 1% 1/2W Metal Film	4835 116 57287	-
#	R431	12 5% 2W Metal Film	4835 116 57075	2W012
	R432	2800 1% Metal Film Chip	-	-
		2740 1% Metal Film Chip	4835 111 37045	-

For SAFETY use only equivalent replacement part.

Line Reference Target LRT-8E4-V2

PARTS LIST continued

SEMICONDUCTORS continued

(Select replacement for best results.)

Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
IC262	LA4270	4835 209 87085	NTE1798	ECG1798	SK9745
IC350	-	4835 209 17432	-	-	-
IC351	X2404P	4835 209 47101	-	-	-
# IC352	CNX35U	4835 130 97005	NTE3041	ECG3041	SK2041
IC353	ST6398B1	4835 209 17433	-	-	-
IC354	PC74HC157P	4835 209 87904	-	-	-
# IC400	6N136	4835 130 97006	NTE3092	ECG3092	SK9770
IC401	-	4835 209 87834	ECG1765	ECG1765	-
# IC402	CNX35U	4835 130 97005	NTE3041	ECG3041	SK2041
IC403	-	4835 209 87712	-	-	-
IC550	LA7838	4835 209 88003	NTE7039	ECG7039	-
# IC570	SC78130U	4835 209 87838	-	-	-
IC601	LA7222	4835 209 87089	NTE7066	ECG7066	-
Q210	-	4835 130 47055	NTE123AP*	ECG123AP*	SK3854*
Q211	-	4835 130 47112	NTE2407	ECG2407	-
Q215	-	4835 130 47049	NTE159	ECG159	SK3466
Q248	-	4835 130 47112	NTE2407	ECG2407	-
Q260 Thru					
Q264	-	4835 130 47086	NTE2406	ECG2406	SK10097
Q327	-	4835 130 47085	-	-	-
Q328	-	4835 130 47086	NTE2406	ECG2406	SK10097
Q408	-	4835 130 47049	NTE159	ECG159	SK3466
Q420	MTW8N50E	4835 130 47768	-	ECG2393#	-
Q450	-	4835 130 47063	-	-	-
Q500	-	4835 130 47055	NTE123AP*	ECG123AP*	SK3854*
Q501	S6022B	4835 130 47796	-	-	-
Q502	-	4835 130 47749	-	-	-
Q510	-	4835 130 47086	NTE2406	ECG2406	SK10097
Q512	-	4835 130 47055	NTE123AP*	ECG123AP*	SK3854*
Q601	-	4835 130 47086	NTE2406	ECG2406	SK10097
Q611	-	4835 130 47112	NTE2407	ECG2407	-
Q612	-	4835 130 47049	NTE159	ECG159	SK3466
Q613	-	4835 130 47086	NTE2406	ECG2406	SK10097
Q614	-	4835 130 47112	NTE2407	ECG2407	-
Q615	-	4835 130 47086	NTE2406	ECG2406	SK10097
Q620	-	4835 130 47112	NTE2407	ECG2407	-
Q630, 31	-	4835 130 47086	NTE2406	ECG2406	SK10097
Q650 Thru					
Q652	-	4835 130 47055	NTE123AP*	ECG123AP*	SK3854*
Q660	-	4835 130 47049	NTE159	ECG159	SK3466
Q661	-	4835 130 47051	NTE123AP	ECG123AP	SK3854
Q680	-	4835 130 47112	-	ECG2407	-
Q681	-	4835 130 47086	NTE2406	ECG2406	SK10097
Q690	-	4835 130 47085	-	-	-
Q691	-	4835 130 47112	NTE2407	ECG2407	-
Z261	-	4835 130 37562	NTE139A	ECG139A	-
Z361	-	4835 130 37046	NTE5036A	ECG5036A	SK33A
Z567	-	4835 130 37063	NTE5030A	ECG5030A	SK22A
Z568	-	4835 130 37664	-	-	-
Z569	-	4835 130 37126	-	-	-

For SAFETY use only equivalent replacement part.
* Lead configuration may vary from original.

CAPACITORS

Item No.	Rating	Mfr. Part No.
CRT BOARD		
C1	100 5% 50V NPO	4835 122 47014
C3	.01 20% 2KV	4835 122 57002
C4	470 10% 1KV	4835 122 47459
JACK PANEL BOARD		
C45	15 10% 50V NPO	4835 122 47441
MAIN BOARD		
# C400	.22 250VAC	4835 122 97047
# C401	.0047 20% 250VAC	4835 122 97023
# C402	470 250VAC	4835 122 97071
# C406	470 20% 250V	4835 122 97022
C421	.001 10% 1KV	4835 122 47373
C430	.001 10% 1KV	4835 122 47373
C433	.001 10% 1KV	4835 122 47373
C442	.001 10% 1KV	4835 122 47373
# C504	.01 5% 1.6KV	-
	.091 1.6KV	4835 121 47197
# C505	330 20% 2KV	-
	.001 10% 2KV	4835 122 37031
C509	22 5% 500V NPO	-
	22 10% 500V NPO	4835 122 47073
C553	4.7 10% NPO	4835 122 47452
CA301	.01 X 5 Capacitor Network	4835 122 97069

For SAFETY use only equivalent replacement part.

CONTROLS

(All wattages 1/2 watt or less, unless otherwise listed.)

Item No.	Function	Resistance	Mfr. Part No.
MAIN BOARD			
R207	AGC	10K	4835 100 17036
R249	Audio Level	2200	4835 100 17037
R255	3kHz	4700	4835 100 17041
R257	SAP Bandpass	22K	4835 100 17038
R258	300Hz	10K	4835 100 17036
R259	Pilot Null	47K	4835 100 17042
R380	Sub Brightness	2200	4835 100 17037
R433	130V	470	4835 100 17039
R514	Horizontal Centering	10K	4835 100 17029
R557	Vertical Size	47K	4835 100 17023
R647	Green Cutoff	4700	4835 100 17022
R648	Green Drive	2200	4835 100 97035
R649	Red Cutoff	4700	4835 100 17022
R651	Red Drive	2200	4835 100 97035
R653	Blue Cutoff	4700	4835 100 17022
R654	Blue Drive	2200	4835 100 97035

ELECTROLYTIC CAPACITORS

Item No.	Rating	Mfr. Part No.
MAIN BOARD		
# C404	470 20% 200V	4835 124 47097
# C405	22 250V	4835 124 47021

For SAFETY use only equivalent replacement part.

CABINET PARTS

Item	Mfr. Part No.
Button Assembly	4835 219 47231
Cabinet Front	4835 430 67056
Cabinet Rear	4835 432 97369
Grille-Speaker	4835 459 47038

PARTS LIST continued

RESISTORS continued

Item No.	Rating	Mfr. Part No.	NTE Part No.
R435	1300 2% 1/4W Metal Film Chip	4835 111 37302	-
# R436	51 5% 2W Metal Film	4835 110 57258	2W051
R437	3010 1% 1/8W Metal Film	4835 116 57029	-
R438	8250 1% 1/8W Metal Film	4835 110 67189	-
# R444	1 5% 1W Metal Film	4835 116 67094	1W1D0
# R445	1 5% 1/3W Metal Film	4822 111 30483	-
# R449	27 5% 1/3W Metal Film	-	-
	24 5% 1/3W Metal Film	4835 116 57019	-
# R451	1 5% 1/3W Metal Film	4822 111 30483	-
R456	4870 1% 1/8W Metal Film	-	-
	2430 1% 1/8W Metal Film	4835 116 57028	-
# R465	1 5% 1W Metal Film	4835 116 57117	1W1D0
# R468	12 5% 2W Metal Film	4835 116 57075	2W012
# R504	1800 5% 3W Metal Film	4835 116 67099	3W218
# R505	.27 5% 1W Metal Film	4835 116 57056	1WD27
# R507	33 5% 3W Metal Film	4835 116 67102	3W033
# R508	680 5% 1/2W Metal Film	4835 116 57381	HW168
# R511	220K 5% 1/2W Metal Film	4835 116 57018	HW422
# R515	8.2 5% 1/2W Metal Film	-	HW8D2
	1 5% 1/2W Metal Film	4835 116 57109	HW1D0
# R519	220K 5% 1/2W Metal Film	4835 116 57018	HW422
# R530	1 5% 1/3W Metal Film	4822 111 30483	-
# R532	100 5% 1/8W Metal Film	4835 110 67071	EW110
# R548	100 5% 1/4W Metal Film Chip	4835 111 37021	-
R552	3600 2% 1/4W Carbon Film Chip	4835 111 37304	-
# R555	330 5% 1W Metal Film	4835 116 57382	1W133
R559	1100 2% 1/4W Carbon Film Chip	4835 111 37381	-
# R563	2.2 5% 1/4W Carbon Film	4835 110 57035	QW2D2
# R565	470 5% 1/4W Metal Film Chip	4835 111 37104	-
R568	11K 2% 1/4W Metal Film Chip	4835 111 37382	-
# R573	100 5% 1/8W Carbon Film	4835 110 67071	EW110
# R574	2000 2% 1/4W Carbon Chip	4835 111 37348	-
# R579	10K 2% 1/8W Carbon Film	4835 110 67179	EW310
# R580	1800 2% 1/4W Carbon Chip	4835 111 37347	-
R606	392 1% 1/8W Metal Film	4835 116 57383	-
R607	1150 1% 1/8W Carbon	4835 111 37352	-
# R609	47 5% 1/4W Metal Film	4835 111 37107	QW047
R617	2400 2% 1/4W Metal Film	4835 111 37326	QW224
R619	560 2% 1/4W Carbon Film	4835 111 37351	QW156
# R640	47 5% 1/8W Carbon Film	4835 110 67004	EW047
# R676	56 5% 1/2W Metal Film	4835 116 67091	HW056
RA301	10K X 4 Resistor Network	4835 111 97021	-
RA304A	20K X 7 Resistor Network	4835 122 97051	-
RA305	10K X 5 Resistor Network	4835 122 97073	-

For SAFETY use only equivalent replacement part.

MISCELLANEOUS

Item No.	Description	Mfr. Part No.	Notes
CHASSIS			
# L499	Degaussing Coil	4835 157 97013	-
SP1	Speaker	4835 240 27017	2 1/4" X 5" 16 Ohm
SP2	Speaker	4835 240 27017	2 1/4" X 5" 16 Ohm
# V1	CRT	4835 131 27057	-
	P.C. Board	(1)	CRT (00APT107)
	P.C. Board	(1)	IR Receiver (00ALR011)
	P.C. Board	4835 219 57373 (1)	Jack Panal (00AVJ132 A001)
	P.C. Board	4835 219 57394 (1)	Keyboard (00ASW108 A001)
	P.C. Board	(1)	Main (00EMX137)
	Remote Transmitter	4835 219 17393	(UR14) (00H1431A BA02)
IR RECEIVER BOARD			
IR90	IR Receiver	4835 218 27004	-
JACK PANEL BOARD			
J3	Jack	0018 221 10004	Video Input
J5A	Jack	4835 265 97219	Audio Input Left / Right
J12	Jack	0018 169 70004	S-Video
J14	Push Terminal	0020 053 90009	Surround Sound Speakers
J15A	Jack	0018 147 80021	Left Variable Audio Output
			Right Variable Audio Output
KEYBOARD			
SW71	Switch	4835 277 27066	Menu Down
SW72	Switch	4835 277 27066	Menu Up
SW73	Switch	4835 277 27066	Channel Down
SW74	Switch	4835 277 27066	Channel Up
SW75	Switch	4835 277 27066	Volume Down
SW76	Switch	4835 277 27066	Volume Up
SW77	Switch	4835 277 27066	Power
MAIN BOARD			
# F400	Fuse	4835 253 97095	4Amp, 125VAC
# K400	Relay	4835 280 47033	Power
L401	Ferrite Bead	-	-
L402	Ferrite Bead	-	-
L441	Ferrite Bead	4835 526 17009	-
S550	Switch	4835 273 57003	Vertical Centering
# P400	AC Line Cord	4835 321 17005	Polarized
# SA400	Protector	4835 116 97001	Surge
Y200	Filter	4835 153 97022	SAW
Y202	Filter	4835 157 57341	4.5MHz
Y203	Filter	4835 153 97004	503.5kHz
Y206	Filter	4835 154 17001	4.5MHz
Y320	Filter	4835 157 57595	10MHz
Y600	Module	4835 152 87001	Comb Filter
Y665	Crystal	4835 242 77179	7.159MHz
	Tuner	003403130005 (1)	UHF/VHF

For SAFETY use only equivalent replacement part.
(1) Contact PTS Electronics Corporation for replacement; order by manufacturer's part number.

PHILIPS

MODEL 27S300C101 (CHASSIS 27X112)